NAVAL HEALTH RESEARCH CENTER

DEVELOPMENT OF A MODEL FOR PREDICTING MEDICAL SUPPLY REQUIREMENTS AT THE FORWARD ECHELONS OF CARE: PRELIMINARY FINDINGS FOR ECHELON II LABORATORY AND X-RAY ANCILLARIES

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Summary

Problem

The expansion of Marine Corps medical capabilities during the Vietnam era resulted in a substantial increase in Class VIII materiel requirements. These conditions have remained relatively constant through the present. Reductions in worst-case scenario Marine Expeditionary Force casualty estimates and recent organizational changes in medical battalion structure have contributed to the need to review the current Authorized Medical Allowance Lists (AMALs).

Objective

The primary objective of the present study was to develop a model of the Echelon I and II medical supply stream that linked each medical treatment item to a specific clinical requirement. This process produces an audit trail for each item in the Marine Corps medical supply system. The audit trail provides medical planners and logisticians with a management tool for maintaining and updating supplies linking the AMAL materiel with Marine Corps specific requirements. In the present paper, the utility of this approach is investigated in the laboratory and x-ray functions of the Marine Corps medical supply system.

Approach

Eighty-five medical Subject Matter Experts (SMEs) with operational experience assisted in the development of Marine Corps specific treatment profiles for 319 Patient Conditions (PCs). The PCs reflected the range of injuries and disease non-battle injuries known to occur in theater. From the treatment profiles, the specific medical tasks performed at three echelons of care (Ia-Battlefield, Ib-Battalion Aid Station and II-Surgical Company) for each PC were identified and assembled in a model describing the mechanics of forward medical care. Medical consumables and equipment were then assigned by the SMEs to each task and its associated PC. This process established the clinical requirement and the basis for the audit trail for each item needed to perform the treatment tasks. Following establishment of the clinical requirements for the supply items, 4 proposed AMALS, including an equipment AMAL 618 and a consumable AMAL 619 for the laboratory functions and an equipment AMAL 627 and consumable AMAL 649 for the x-ray function, were produced.

Results

Results of the study showed that 34 items (46.1%) in the proposed laboratory equipment AMAL 618 could be eliminated with a corresponding weight reduction of 207.7 pounds (28.4%) and a corresponding space reduction of 10.4 cubic feet (10.4%). Nine items with no known clinical requirement were eliminated in the proposed consumable laboratory AMAL 619 for a net reduction of 11.0%. These savings in the number of items, weight and cubic volume of the laboratory AMALs were realized even though the number of diagnostic tests the laboratory could conduct was increased substantially.

Reductions were also realized for the 2 x-ray AMALs. A net-weight savings of 139.34 pounds (13.9%) and a net-space savings of 6.8 cubic feet (4.2%) was realized in the proposed x-ray equipment AMAL 627. In the proposed consumable x-ray AMAL 649, the number of items eliminated accounted for a 7.1% net reduction.

Conclusions

The results demonstrate the effectiveness of the model in reducing the logistical burden Marine Corps units carry. By establishing an empirical link between theater medical procedures and injury conditions, medical supply decisions can be more closely matched to Marine Corps requirements. This represents a substantial improvement over the current system. Through the process of establishing the clinical requirement for each supply item, an audit trail was produced which, for the first time, gives logisticians and medical planners an objective management tool for maintaining and upgrading AMAL Class VIII medical materiel.

MESSAGE FROM HEADQUARTERS MARINE CORPS

>R 251210Z FEB 97 ZYB PSN 829368Q36
>FM CG MCCDC QUANTICO VA//INT/REQ/DOC//
>TO RUEACMC/CMC WASHINGTON DC//LP//
>INFO RUWFFIX/NAVHLTHRSCHCEN SAN DIEGO CA//
>RULSMCA/CG MCCDC QUANTICO VA//INT/REQ/DOC//
>BT
>UNCLAS //N04400//
>MSGID/GENADMIN/CG MCCDC QUANT VA/INT//
>SUBJ/1997 LAB AND X-RAY REVIEW//
>REF/A/DOC/NAVHLTHRESCTR/JAN 97//
>NARR/REF A PROVIDES PRELIM FINDINGS OF STUDY CONDUCTED FOR THE MARINE
>CORPS TO VALIDATE WHOLESALE CLASS VIII RQMTS WITH INITIAL LOOK AT LAB
>AND X-RAY AMALS.//
>POC/CAPT(SEL) BILL FRANK/MSC/USN/- /TEL:(703)784-6258/TEL:
>DSN 278-6258//
>RMKS/1. REF A WAS REVIEWED AT THIS COMMAND.
>2. MCCDC CONCURS WITH INITIAL FINDINGS AND WITH METHODOLOGY USED TO
>PRODUCE PRELIMINARY FINDINGS.
>3. RECOMMEND IDENTICAL PROCESS BE USED FOR OTHER AMAL-ADALS UNDER
>REVIEW BY &L AND NAVHLTRESCEN SAN DIEGO.
>4. POC E-MAIL ADDRESS: FRANKW@MQG-SMTP3.USMC.MIL.//
>BT
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DEVELOPMENT OF A MODEL FOR PREDICTING MEDICAL SUPPLY REQUIREMENTS AT THE FORWARD ECHELONS OF CARE: PRELIMINARY FINDINGS FOR ECHELON II LABORATORY AND X-RAY ANCILLARIES

Introduction

Class VIII logistics apply to the medical and dental materiel, blood and blood products necessary to support the Marine Expeditionary Force (MEF). The expansion of United States Marine Corps (USMC) medical capabilities during the Vietnam era resulted in a substantial increase in Class VIII equipment and consumable supplies. Two primary factors were responsible for this growth. First, was the establishment and maintenance of a stable operating environment that functioned in an area lacking Navy Echelon III medical capability. Second, a new and broader medical structure, consisting of 18 state-of-the-art operating rooms and a holding element of 540 beds, emerged. Taken together, these factors contributed to an explosion of forward medical supply requirements (Tomlinson, 1996). The resultant medical supply capability provided support for a worst-case MEF casualty estimate of 20,000 for a 60-day period. Furthermore, the level of care supported approached, and in some areas, attained Echelon III level capability.

Recent changes in Marine Corps doctrine and policy, which impact medical readiness and capability, have contributed to the need to review the current Authorized Medical Allowance Lists (AMALs). These changes include a reduction in worst-case scenario MEF casualty estimates from 20,000 to 8,381. This represents a 58% reduction in anticipated casualties. In addition, a major reorganization of the medical battalion occurred. Through this reorganization, the medical battalion was downsized in structure and reduced in capability. Significant among these changes are the addition of highly mobile Shock Trauma Platoons (STPs) equipped to augment the Battalion Aid Station (BAS). The Collecting and Clearing Companies have been renamed Surgical Companies and a renewed emphasis has been placed on limiting procedures to only those necessary to resuscitate and stabilize casualties. Furthermore, Surgical Companies are now composed of a triage/evacuation platoon, a surgical platoon consisting of 3 surgical sections and a holding platoon consisting of 3 ward sections. The surgical and holding platoons are staffed for two 12-hour shifts capable of splitting into 2 units for enhanced forward deployability. Likewise, an ancillary platoon consists of 2 x-ray, laboratory and pharmacy sections (McCoy, 1996). As a result of these organizational changes and changes in

policy and doctrine, the medical consumable and equipment requirements for the revised platforms must be reexamined and validated in light of their new capabilities.

Besides changes to the organizational structure of the Medical Battalion, there is a long-term need to improve the entire AMAL review process. For example, the current process is unable to identify and match each consumable/equipment item with its specific clinical requirement. Because the consumables and equipment stocked in the AMALs are not mapped to injury types, the requirement for the items themselves and their quantity cannot be effectively related to the anticipated number and types of injuries requiring them. These constraints limit the current review process from producing an audit trail by which the specific clinical requirement for each item stocked can be determined and the quantity required can be assessed using anticipated casualty streams.

The Naval Health Research Center (NHRC), in the present study, has proposed a model of the Echelon I and II medical supply stream, which addresses the aforementioned constraints within the current AMAL review process. In the model, each medical supply item is linked to its specific clinical requirement. These clinical requirements are the domain of medical tasks conducted at the forward levels of care. Each clinical requirement is, in turn, mapped to the injuries and diseases known to occur in theater. In this approach, the anticipated casualty stream guides the selection of supplies required. The quantity of supplies stocked can be more accurately predicted because of the direct relationship established between what is stocked and what will be needed to treat each casualty anticipated to present at a theater Medical Treatment Facility (MTF). Furthermore, this process results in a readily identifiable audit trail linking each supply item stocked with its specific clinical requirement. In this way, the review process may be used more effectively for maintaining the AMAL blocks and for routinely updating the medical supply stream to reflect continuing changes in medical equipment technology.

Method

To ensure tri-service utility, the NHRC model was designed to interface with the Echelons III and IV Deployable Medical Systems (DEPMEDS) model (DMSB, 1996). The DEPMEDS model, which consists of databases arranged in a relational structure named the Time, Task, Treater files, was developed to standardize medical materiel and to assemble it into sets so that each of the services could build different-sized medical facilities, according to its own unique requirements, using a common supply stream. The data in the DEPMEDS model are based upon treatment protocols for 319 Patient Conditions (PCs), each representing a grouping of closely related diagnoses, which are considered representative of the injuries expected to occur in theater (Galarza, 1987). To build upon

this existing standard, the structural characteristics of the NHRC model databases are compatible with those DEPMEDS Time, Task, Treater file databases. Because both the DEPMEDS and NHRC models share a common structural design, the two models can eventually be combined to produce a seamless methodology for projecting medical materiel requirements from the First through the Fourth Echelon.

NHRC Medical Supply Model

The 319 DEPMEDS PCs formed the core around which the NHRC Echelon I and II model was constructed (see Appendix A for a complete list). The PCs were classified according to those resulting from (a) Wounded in Action (WIA), (b) Non-Battle Injuries (NBI), (c) Disease, (d) Battle Fatigue (BF), and (e) Female Specific. The PCs were further classified into 24 categories of injury/disease type. Injury/disease types, for example, included thoracic, spinal, abdominal/pelvic, dermatological, infectious/parasitic, etc.

Construction of the model began with the identification of the medical tasks associated with administering treatment at the three levels of care under investigation (Echelon Ia-Battlefield, Echelon Ib-Battalion Aid Station, and Echelon II-Surgical Company) and then mapping each of the tasks to the appropriate PC. This process produced a step-by-step treatment protocol for each PC which was used to assign the consumable and equipment requirements. Identification of the required tasks was conducted in cooperation with the Army's Medical Doctrine Development Center (AMEDD) Ft. Houston, TX. A partial list of Echelon II medical tasks, mapped to the PCs, was provided by AMEDD. This list provided the base upon which Echelon Ia, Ib, and II Marine Corps specific treatment protocols were constructed for each PC.

Treatment tasks for a Marine Corps Echelon II MTF remained to be identified for some key functional areas. For example, ward care tasks and operating room/anesthesia procedures required identification. Construction of the PC treatment protocols continued with the identification of treatment tasks requiring consumable or equipment supplies for these remaining Surgical Company functional areas. This was accomplished by consulting the DEPMEDS model. DEPMEDS Echelon III tasks, for each of the required functional areas (x-ray, operating room, ward care, and laboratory) were identified. This list of Echelon III tasks was then forwarded to Subject Matter Experts (SMEs) who were asked to review the tasks and select those which they knew to also be conducted at an Echelon II level Marine Corps MTF. The final list of Echelon II tasks, identified by the SMEs, were then remapped to each of the PCs. This resulted in a preliminary treatment protocol, broken down into the component tasks that require consumables or equipment, for each of the 319 PCs. Table 1

Table 1

Echelon II Task List for PC 005: Cerebral Contusion with Intracranial Hematoma, Severe

Task Number	Task Description
001	Triage
002	Assessment and Evaluation of Patient Status
006	Establish Adequate Airway
010	Neurological Assessment
011	Stabilize Neck (Collar/Spine Board)
014	Intubation
037	BVM Setup
023	O_2 Administration Continuous (Nasal/Mask)
024	Vital Signs
025	Cardiac Monitor Setup and Connect to Patient
028	Cardiac Arrest Resuscitation
032	Set Up Pulse Oximeter
035	Arterial Puncture
050	IV Infusion
061	IV Infusion Medications
069	Initiate Heparin Lock
071	Insert NG Tube
075	Irrigate NG Tube
244	Hemacult Test Feces Emesis Gastric Suction
079	Catheterization, Foley
082	Measure/Record Intake/Output
084	Shave and Prep
122	Eye Drops Instillation
126	Seizure Care/Precautions
127	Patient Restraint (Gauze, Mitts, Ties)
149	Blood Drawing Venous
595	Blood Gas Estimation
596	Electrolyte Levels (Na, K, Cl, CO_2)
612	Complete Blood Count (CBC)
620	Urinalysis w/Specific Gravity
683	Cervical Spine Series (AP Open Mouth Lateral Both Obliques)
686	Skull Series (PA Both Laterals Chamber-Town Submen to Vertica)
693	Interpretation of Film Studies
344	Patient Preparation in the OR
351	OR Team Preparation (Surgical Hand Scrub)
530	Induce General Anesthesia
531	Maintain on General Anesthesia
403	Burr Hole Procedure
537	Recovery/Release from Anesthesia
748	Assemble Material/Clean Up
277	Prepare for Evac Ground/Air

shows an example of one of these protocols, in this case, the protocol for PC 005. Medical tasks not requiring medical consumables or equipment (e.g., Maintain on Cardiac Monitor) were not included in the protocols.

Data Collection

The next phase in development of the model required SMEs, experienced in Echelon I and II medical care to (a) validate the treatment tasks and their assignments to the PCs, and (b) identify the appropriate consumable and equipment stream for each of the tasks. To achieve this objective, surveys were constructed for each of the PCs and mailed to SMEs with operational field medical experience.

Subject matter experts. Eighty-five medical professionals experienced in combat casualty care participated in the study. These SMEs were drawn from 12 Navy/Marine Corps commands, including the 1st, 2nd and 4th Medical Battalions; the 1st and 2nd Force Service Support Groups (FSSGs); 1st Marine Expeditionary Force (IMEF), Surgeon's Office, Camp Pendleton, CA; Marine Force Pacific (MARFORPAC), Health Services Division, Camp Smith, HI; Naval Medical Logistics Command, Fort Detrick, MD; Marine Corps Combat Development Command, Quantico, VA; Naval Hospitals Camp Pendleton, CA, and Camp Lejeune, NC; and Navy Medical Center, San Diego, CA. The medical specialities within this group of SMEs consisted of 35 physicians/surgeons, two physician's assistants, 15 nurses, 4 laboratory/x-ray technicians and 14 Independent Duty Corpsmen medical course instructors. All SMEs, except 2 surgeons and 2 nurses had significant theater operational experience in the administration of combat casualty care at the forward echelons.

Procedures. A total of 176 surveys, covering 176 of the PCs, were distributed to the SMEs. The 176 PCs were systematically selected from each of the 24 categories of injury type. Many of the PCs were similar clinically and did not vary in terms of the treatment that would be administered at an Echelon II MTF. For example, PC 001 presents a *cerebral contusion with/without a nondepressed linear skull fracture-severe*. PC 002 presents a *cerebral contusion with/without a non depressed linear skull fracture-moderately severe*. The treatment tasks required to stabilize these two PCs at Echelon II or further forward do not differ significantly. Because of the high degree of similarity between many of the PCs, survey data could sometimes be applied to more than one PC. Consequently, only one of each group of clinically similar PCs was surveyed thereby permitting the data from the 176 surveyed PCs to be applied to the remaining unsurveyed (clinically similar) PCs.

The surveys served two primary objectives. The first was to have the SMEs examine the tasks associated with each of the PCs. If required, they were to adjust the task profiles for each of the PCs to more closely reflect care rendered at the forward echelons. The second primary objective of the surveys was to have the SMEs identify the appropriate consumable and equipment supply stream required to administer the care for each of the treatment tasks at the forward echelons. A description of the methodology used in the surveys to achieve these objectives follows.

Survey of treatment tasks. Each survey consisted of the treatment tasks for a single PC. The treatment tasks were divided into the three levels of care under investigation (Ia, Ib and II). SMEs were asked to examine the treatment task lists for each of the levels of care and to indicate whether they felt each task was appropriate to both the PC and the level of care under consideration. Space was also provided for SMEs to add any tasks, not already listed on the survey, that they felt should be included as part of the PC treatment protocol.

Survey of consumable items. To obtain the consumable supplies required, SMEs assigned the materiel they needed to accomplish each of the treatment tasks. Each survey provided space adjacent to each of the tasks to indicate what consumables would be required to accomplish the task. SMEs repeated this procedure for each of the three levels of care.

Because a significant portion of the supply stream required standard items common to multiple tasks that would continue to be repeated throughout the surveys, an attempt was made to prerecord these types of items on the survey. By doing so, the time required to complete each survey could be significantly reduced because SMEs could check-off rather than write-in standard items, such as syringes, catheters, tubing, lubricant, etc.

Survey of equipment items. The final portion of each of the PC surveys required the SMEs to assign the equipment items they felt were needed to accomplish each of the identified tasks. In addition to equipment items which could be associated with a specific treatment task, they were also asked to indicate those that could only be assigned by PC and not by task. For example, no tasks existed for general equipment items, such as cots, supply chests, instrument trays, etc. Again, to reduce the time and tedium of completing the surveys, prerecorded items, which could be simply checked *yes* or *no*, were included in the PC surveys. In addition to identifying each item of equipment, SMEs were also asked to indicate in which Echelon and MTF functional area the equipment would be used.

A total of 77 (44%) of the 176 surveys were returned. This rate of return was achieved by initiating phone contact with each of the SMEs prior to sending them a survey to enlist their support as well as after they received the survey to encourage timely completion. As surveys were returned, face-to-face interviews with SMEs were conducted to refine the data and fill in blanks left in the surveys. The remainder of this paper will present the laboratory and x-ray findings of this study.

Results and Discussion

Laboratory Test Selection

The survey results showed that the SMEs identified a total of 32 different types of laboratory tests and assigned each of these tests to one or more PCs. To assure agreement among SMEs, this list of 32 tests was sent to 4 additional Navy surgeons with in-theater operational experience at the Second Echelon. These SMEs were asked to rate each of the 32 tests according to their value in assisting in the resuscitation/stabilization of casualties, reducing evacuations to higher levels of care, and maximizing returns to duty (RTDs). A three-point scale, with "1" representing a high score on these criteria and "3" a low score on the criteria, was used to rate the laboratory tests. Laboratory tests that received a mean score of 2.0 or below on these criteria, were included in the remaining analyses. This resulted in a final group of 25 laboratory tests (see Table 2).

Table 2
Laboratory Tests Required at Echelon II

Blood Gas Estimation	Potassium Hydroxide (KOH) Preparation
Blood Glucose Level	Pregnancy Determination
Blood Type & Cross	Prothrombin Time
BUN Level	Rapid Strep Test (Throat)
Complete Blood Count	RPR Test for Syphilis
Examine Feces for Ova/Cysts/Parasites	Serum Bilirubin Level
Electrolyte Levels (Na, K, Cl, CO_2)	Serum Creatinine Level
Gram Stain	SGPT Level
Hematocrit Level	Spinal Fluid Cell Count & Differential
Issue Packed RBCs	Thick & Thin Smear for Malaria
Microscopic Urinalysis	Urinalysis with Specific Gravity
Occult Blood Determination	White Blood Cell Differential Count
Partial Thromboplastin Time	

The next step in the analyses, to determine how the laboratory tests were distributed among the PCs, was accomplished by grouping each test into 1 of the 5 following categories: (a) hematology, (b) chemistry, (c) urinalysis, (d) blood bank, or (e) microbiology. Then, the 181 PCs that required laboratory tests were grouped according to the type of injury/disease they represented. The PC groups included: (a) battle fatigue, (b) disease, (c) non-surgical battle/non-battle injuries and (d) surgical battle/non-battle injuries. The frequency with which each group of laboratory tests was required within each of the PC groups was then determined. Figures 1-5 present the results.

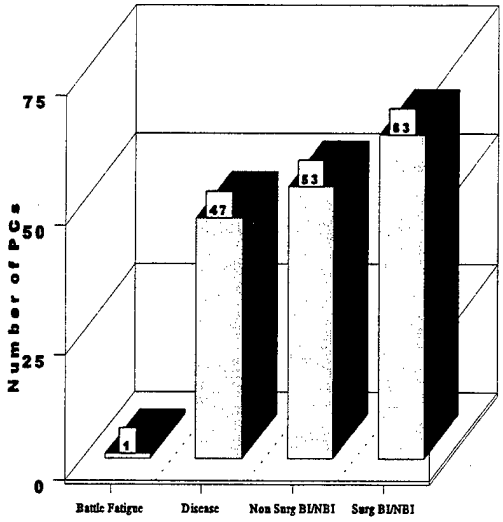

Fig 1. PC Type Distribution of Hematology Tests

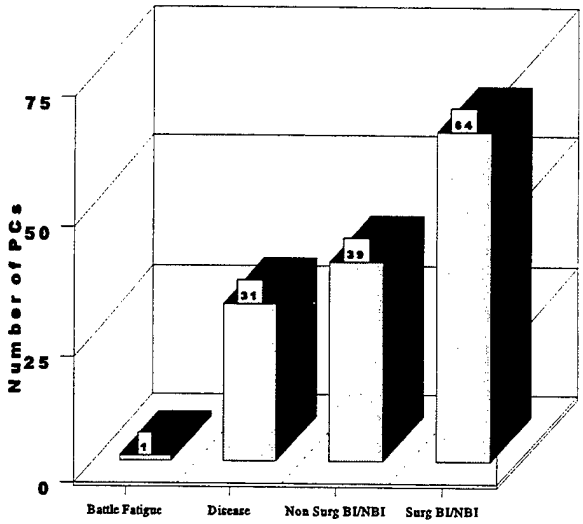

Fig. 2. PC Type Distribution of Chemistry Tests

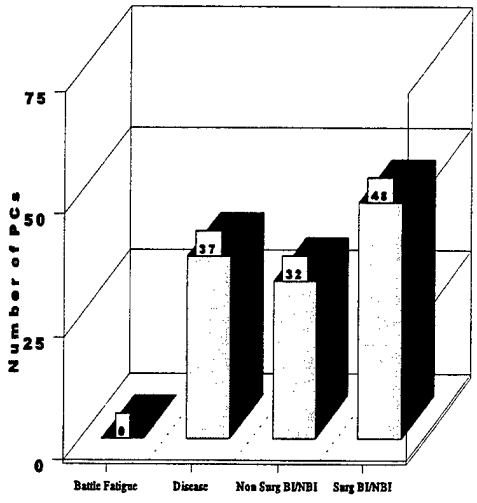

Fig. 3. PC Type Distribution of Urinalysis Tests

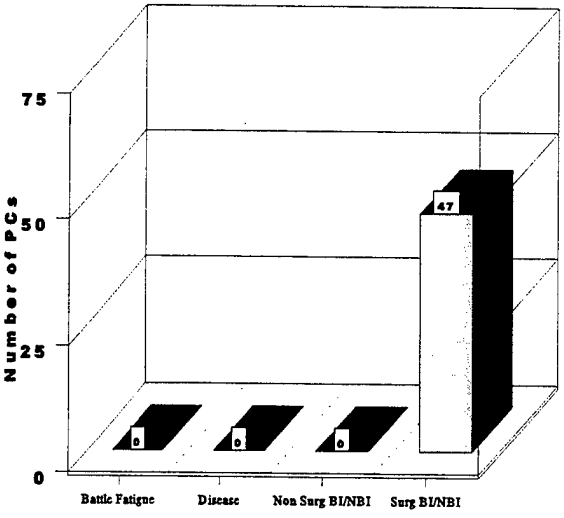

Fig. 4. PC Type Distribution of Blood Bank Tasks

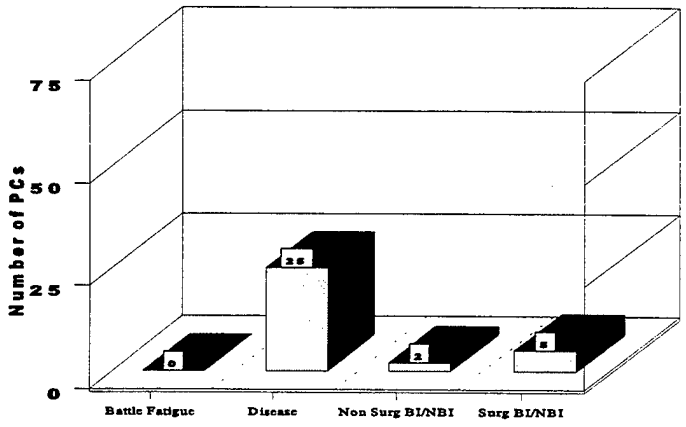

Fig. 5. PC Type Distribution of Microbiology Tests

It can be seen from Figures 1-5 that of the 181 PCs requiring at least one laboratory test, 164 of these required hematology tests (90%). This was followed by chemistry analyses, which were required by 135 of the 181 PCs (75%) requiring one or more laboratory tests. Fewer PCs required urinalyses (65%), blood bank (26%) and microbiology (18%). It can also be seen in the figures that, with the exception of the microbiology tests, the patient groups utilizing the most laboratory resources were the surgical and non-surgical battle/non-battle injury PCs. Furthermore, the findings demonstrate that PCs, which require immediate resuscitative/stabilizing surgical intervention, place the greatest demand on laboratory resources.

Laboratory Test Materiel Requirements

Once the tests required at the Second Echelon had been identified and their relative impact on laboratory resources established, it was necessary to determine how adequately the existing Marine Corps laboratory supply AMALS were able to meet these requirements. This was accomplished by examining the current laboratory consumable AMAL 619 and the current equipment AMAL 618 and matching each component supply item to the laboratory test it is used to conduct. This process was important because it established the clinical requirement for each item in the laboratory AMALS.

Results of this analysis revealed that 4 of the tests identified by SMEs as valuable in providing Echelon II care could not be conducted because the materiel required to perform the test was not present in either AMAL 618 or 619. These tests are shown in Table 3.

Table 3

Laboratory Tests Currently Unavailable at Echelon II

Rapid Strep Test	Serum Bilirubin Level
SGPT Level	Pregnancy Determination*

*This test would not typically be conducted in the laboratory area

Furthermore, this analysis identified 33 equipment items in AMAL 618 and 19 items in the consumable AMAL 619 that were not used to conduct any required laboratory task and, therefore, possessed no known clinical requirement. Two possible explanations are proposed for these excess items. The first postulates that the excess equipment items are included in the current AMAL 618 because they are intended for laboratory tests which exceed an Echelon II level of care. The second postulates that the excess consumable items are intended for use with the excess equipment items and/or remained in the AMAL 619 when their associated equipment was either upgraded or replaced in the current equipment AMAL at some earlier date.

The preceding examination of the current Marine Corps laboratory supplies identified all the equipment/consumable items in the current supply stream that would be required to conduct the Echelon II laboratory tests identified by the SMEs. In the next phase of the analysis, all items not in the current supply stream that were required to conduct the tests identified by the SMEs were selected and related to their appropriate test. This new group of consumables and equipment consisted of those missing items necessary to conduct the tests listed in Table 3. Each new item was selected on its ability to meet Marine Corps field requirements and was obtained from the National Stock System, thereby yielding a National Stock reference Number (NSN) for tracking purposes. Where feasible, D-Day items, drawn from the approved DEPMEDS list of medical materiel, were used. Appendix B lists the complete equipment and consumable requirements for each of the 26 laboratory tests. Those items not previously in the laboratory consumable or equipment AMAL are indicated with an asterisk.

Laboratory equipment AMAL requirements. With each equipment item required to conduct all Echelon II laboratory tests identified and their clinical requirements established, the equipment AMAL 618 could then be configured. The number of laboratories to be established for each Surgical Company of the MEF is two. A total capability of 17 laboratories is defined for a notational MEF (Marine Corps Commandant message No. R-100105Z, SEP 96). The results of the present study

are presented in terms of the equipment requirements for the establishment of one of these laboratories. Table 4 shows the proposed AMAL 618, listing NSN, item nomenclature, quantity of item required, item weight, item cubic volume and total weight and total volume of the AMAL.

An examination of Table 4 shows, as expected, that only one of most items is required. This is consistent with the traditional philosophy of limiting most laboratory equipment items to a quantity of one. There are, however, 6 equipment items stocked in the proposed 618 that exceed a quantity of one. These are a laboratory centrifuge, a dry heat incubator, a table and chair, a multi-plug power strip and a test tube rack. Two centrifuges and two incubators were included because both the blood bank and urinalyses testing require these items. This allows the laboratory to maintain a higher level of performance without a significant increase in weight and cube. Three test tube racks were included for the temporary storage of incoming samples as processing is carried out, and the remaining items, 2 chairs, 2 tables and 2 power strips are included to permit the setup and operation of 2 work stations.

Table 4 also shows that the proposed AMAL 618 contains 41 individual items. This compares with 76 items for the current Marine Corps 618, representing a drop of 35 items (46.1%). More importantly, by establishing the clinical requirement for each item stocked the weight and cube have also been substantially reduced. The total weight in the proposed 618 is 732.4 pounds and the total volume is 91.6 cubic feet. This compares to 940.1 pounds and 101.1 cubic feet in the current Marine Corps 618. Using the approach presented in this paper, the proposed AMAL 618 is 207.7 pounds (28.4%) lighter and 9.6 cubic feet (10.4%) smaller than what is now carried.

Laboratory consumable AMAL requirements. Although the type of consumable items was identified, the number of each type of consumable was not calculated in the present study. Unlike equipment items, the quantity of each consumable item required is highly dependent upon the anticipated patient stream and will fluctuate according to the number of patients requiring laboratory services. In this study, the quantity of each type of consumable in the AMALS was not developed upon a particular patient stream. Therefore, only whether or not a consumable item is required has been investigated and reflected in the proposed consumable AMAL 619 list. The model discussed in this paper is, however, capable of identifying the amount of each consumable. To accomplish this requires the input of an anticipated patient stream. With the aid of patient-generating models, such as PATGEN (U.S. Army Medical Department Center and School), the distribution of PCs can be determined from the anticipated casualty stream. With a distribution of PCs as input to the NHRC medical supply model, both a list of consumable items and the specific amount of each item required

Table 4

Proposed AMAL 618 - Laboratory/Blood Bank Equipment

NSN	Nomenclature	Quantity	Unit Issue	Unit Weight	Unit Cube
6630012769462	Analyzer Module Clinical Chem Ektachem DT60	1	EA	1.0000	1.0000
6630011479532	Analyzer Carbon Dioxide Hand Operated	1	EA	0.0001	0.0989
6630012346794	Analyzer Centrifugal Hematology 120/220V	1	EA	30.0000	5.5640
6630012776342	Analyzer Clinical Chemistry Ektachem DT60	1	EA	25.0000	5.0000
6630014151593	Analyzer Clinical Chemistry Piccolo	1	EA	15.0000	2.3400
6640009821290	Beaker Lab Polyprop 400ML Cap Rating B1 Low	1	EA	0.2900	0.5800
6640009338868	Burner Gas Lab Bunsen Liq Petroleum Gas	1	EA	0.3100	0.0180
6640009309034	Centrifuge Lab SM Trunnion 115V 50/60Hz	2	EA	24.0000	2.0000
6640012831435	Centrifuge Lab Battery Powered 9V	1	EA	60.0000	0.0369
7110001941611	Chair Rotary Style AG12 w/Footrest Spider	2	EA	30.0000	18.7500
6640004188010	Counter Blood Cells Differential	1	EA	5.8300	0.2500
4610009762420	Demineralizer Water Ion Exchange 10W 6s	1	EA	8.0000	1.1111
6515003343800	Forceps Hemostatic Kelly Curved 5.5IN	1	EA	0.1500	0.0100
6640008897023	Funnel Common Lab Polyprop Ribbed 100MM	1	EA	0.1300	0.0320
6630004277000	Hemacytometer Set Complete w/Case	1	SE	0.7000	0.5000
5120009650326	Igniter Friction Wire Frame Round File	1	EA	34.5600	2.3040
6640012870642	Incubator Dry Heat 25-115 Deg C 115/120V	2	EA	5.0000	1.0000
6640011179692	Loop Inoculating Lab Round Tip 0.41MM	1	EA	0.0100	0.0010
6650012070829	Microscope Optical Binocular 120/230V	1	EA	40.0000	5.4000
5975011624448	Outlet Box 6LB 6 Place 120/230V 50/60Hz	2	EA	5.5000	0.1800
6640004029250	Pan Biological Staining Rectangle 25.3x15CM	1	EA	1.6700	0.2400
6640010444708	Pipet Blood Diluting Thomas Glass White Corp	1	PG	0.0300	0.0100

6640010444707	Pipet Blood Diluting Thomas Glass w/o Tubing 12s	1	PG	0.0300	0.0100
6130010701500	Power Supply 115V 50/60Hz	1	EA	1.0000	0.0100
6640002998490	Rack Test Tube Laboratory 10x4.25x2.5IN	3	EA	1.0400	0.1150
6650009333218	Refractometer Hand Immersion Ty Alum 3 Scale	1	EA	1.0000	0.2170
4110012877111	Refrigerator Solid State Blood Products	1	EA	45.0000	1.0000
4110001156027	Refrigerator Mechanical Biologicals 115V	1	EA	110.0000	13.4071
6640011721132	Rotator Lab Variable Speed 120/230V	1	EA	8.0000	0.2010
7510001616215	Ruler Wood w/Bevel 12IN Sing Metal Edging	1	EA	0.0400	0.0010
5110002933444	Shears Straight Trimmers Heavy Duty 6IN	1	EA	0.1200	0.0120
6650009354247	Shield Optical Microscope Collapsible Vinyl	1	EA	0.1800	0.0200
6545013020228	Sink Unit Surgical Scrub Field Portable 115V	1	EA	70.0000	2.0000
7520002815895	Stapler Paper Fastening Office Desk Gray	1	EA	1.5000	0.0600
6530011896960	Sterilizer Surg. Instrument & Dressing 120/230V	1	EA	67.0000	2.4700
6515011405267	Stripper-Sealer-Cutter Blood Coll TU Handheld	1	EA	0.0100	0.0010
7105007100210	Table Folding Legs: Laboratory 72x20x30 Sty AR4	2	EA	30.0000	1.2500
6630011541697	Timer Blood/Plasma Coagulation 115V 60Hz	1	EA	10.0000	0.8220
6640011656692	Viewer Agglutination Test Tube 115V 60Hz	1	EA	3.5000	0.1000
6640002998493	Wash Bottle Lab 250ML Plastic 2.5IN	1	EA	0.2100	0.0310
	TOTAL WEIGHT = Σ (Quantity x Unit Weight) in pounds		=	**732.3901**	
	TOTAL CUBE = Σ (Quantity x Unit Cube) in cubic feet		=		**91.5630**

is produced. Identification of appropriate casualty streams and generation of specific consumable amounts are currently under investigation.

With each item required to conduct all Echelon II laboratory tests identified, the consumable AMAL 619 could also be configured. The final list of consumable items to be included in proposed AMAL 619 is presented in Table 5. As with the equipment AMAL, only items with an identified clinical requirement that could be related to a particular task conducted in the laboratory were included. It should be noted that the amount of each consumable item has been limited to a quantity of a single package based upon the primary unit of issue identified in the National Stock System. For example, the finger lancets are boxed in minimum packages of 100. A single package of lancets has been listed for AMAL 619.

After identifying the clinically relevant laboratory consumables, a comparison was conducted between the existing Marine Corps consumable AMAL 619 and the proposed consumable AMAL 619 to determine the difference between the two in terms of the number of items in each. A total of 91 items are currently stocked in AMAL 619. In comparison, the AMAL 619 proposed by NHRC is fully configured with a total of 81 items. By establishing the clinical requirement for each item in the proposed AMAL 619, the number of unique items needed was reduced by 9 (11.0%). Because consumables not included in the current 619 were added to the proposed 619 so that the 4 tests shown in Table 3 could be conducted, this reduction in required consumables was realized concurrent with a substantial increase in laboratory capability.

Table 5

Proposed AMAL 619 - Laboratory/Blood Bank Consumables

NSN	Nomenclature	Unit Issue
6505001002470	Acetic Acid Glacial USP 1LB	BT
6515012346838	Applicator Disp Square Cotton/Poly Tip 6"L 100s	PG
8105011921904	Bag Biohazard Disposable Red/Orange 100s	PG
6515013723417	Bag Blood Collecting/Dispensing Disp 600ML 4s	PG
6530011075798	Bag Sterilization/Biohazard Disp 36x24IN 200s	PG

0102LF0159800	Blood Donor Card DD-572 100s	PG
6550013170288	Blood Grouping Serum Anti-A Liquid 10ML Vial 15s	PG
6550013438993	Blood Grouping Serum Anti-A & B Liquid 10ML 15s	BT
6550010572643	Blood Grouping Serum Anti-B Liquid 10ML USP	PG
6550010572575	Blood Grouping Serum Anti-D Liquid 10ML USP	BT
7530002223525	Book Memorandum 10.5x8IN Ruled 192 Pages	EA
6640006841345	Box Microscope Slide Plastic 25 Slides	EA
6640004097000	Bulb Dropping Pipet Rubber 3ML 12s	PG
6630012337594	Capillary Centrifugal Hematology TU 100s	PG
4610009215622	Cartridge H_2O Demineralize Ion Exchange 6s	PG
6640009267674	Cartridge Lab Gas Burner Disp Nonrefill 156GR 6s	EA
6550011159182	Cephaloplastin Reagent 2ML 10s	PG
6515011405268	Clip Sealing Blood Collection 1000s	PG
6550013103236	Control Human Serum f/Dry Chem Abnormal	PG
6550013103237	Control Human Serum f/Dry Chem Normal	PG
6550010380792	Control Coagula Abnormal Citrated Lyoph 10s	BX
6550010380793	Control Coagula Normal Citrated Lyoph 10s	PG
6640006180066	Cover Glass Microscope Slide 22MM 1OZ	PG
6640011414800	Cuvette Blood Sample Plas Disp K31 1000s	PG
6530011832863	Disp Contain Hypodermic Needle & Syringe Plas.12s	PG
6550010754011	Fecal Specimen Collection/Preparation Kit 20s	PG
7540001818354	Form Printed Hematology 6.25x4IN 100s	HD
7540001818355	Form Printed Urinalysis 6.25x4IN 100s	HD
7540001818344	Form Printed Miscellaneous 6.25x4IN 100s	HD
6550001539968	Giemsa's Staining Solution 50ML 25GM 2s	PG
6515011502977	Gloves Patient Exam & Treat Plastic Disp LG 100s	PG
6630012309964	Holder Blood Collecting Tube Plas Polyprop 2.438IN	PG
6640002999807	Immersion Oil Microscopy 1OZ	BT
6550002619053	Kit Gram Staining	EA
7530010617772	Label Style A2 Pressure Sensitive 492INx19MM 12s	PG
6515004312890	Lancet Finger Bleeding 100s	PG
6640009351382	Mouthpiece Pipetting Plastic/Bone 12s	PG
6515010032368	Needle Hypodermic Ster Disp Mat 20GA 1000s	PG
6510007863736	Pad Isopro Alcohol Impregnated 2.6x1.8IN 100s	PG
6640009370760	Paper Lens Pad White Bibulous 6x4IN 12s	PG
7520009357136	Pen Ballpoint Retractable Med Pt Black	DZ
7510001743205	Pencil Red Glazed Extra Thick 6.25IN 12s	DZ
6640013598060	Pipet Bacteriological Disp 250s	PG
NO NSN	Pipet Lithium Heparinized	PG
6640010887108	Pipet Transfer 1.5ML Capacity Disp	PG

6630001267503	Pipet-Diluent Blood Lab Plastic .02ML 200s	PG
6810001366000	Potassium Hydroxide ACS 4OZ	BT
6505004917557	Povidone-Iodine Cleansing Sol USP 7.5% 4Fl Oz	BT
6550014354308	Reagent Rotor Piccolo General Health 11 Test	BX
6550014354309	Reagent Rotor Piccolo Liver Panel 08 Test	BX
6550012748514	Reference Standard Sol Sodium Potas Chl 4s	PG
6550012748513	Reference Standard/Dilut Set Blood Chem 3s	EA
7510002050842	Rubber Bands Size #33 .25LB	BG
6640010104122	Sealer-Holder Capill Tube Plastic Disp 6s	PG
7540001818359	SF546 Chem I (3 PT)	HD
6640000744191	Slide Microscope Plain Glass 25x75MM 72s	PG
6530000756636	Specimen Kit Urine 501 Components	PG
6510007822700	Sponge Surg Gauze Compressed 2x2IN White	PG
7510002729662	Staples Paper Fastening Office Type 5000s	BX
6550001464875	Sulfosal Acid Dihydrate Analyzed Reagent	BT
6550012724054	Test Kit Group A Strep	PG
6550013766541	Test Kit Human Chorionic Gonadotropin	EA
6550001656538	Test Kit Occult Blood Determination 100 Tests	EA
6550010230949	Test Kit Serum Carbon Dioxide Determination	EA
6550001595011	Test Kit Syphilis Detection 500 Tests	EA
6550012747317	Test Slide Carbon Dioxide Determination 25s	PG
6550012747216	Test Slide Chloride Determination 25s	PG
6550012747218	Test Slide Potassium Determination Disp 25s	PG
6550012747219	Test Slide Sodium Determination Disp 25s	PG
6550011225540	Test Strip/Color Urine Chemistry 100s	BT
6640011190013	Test Tube Style K12 5ML 75MM Disp 1000s	PG
6550013139610	Thromboplastin Test Reagent Liq. 10 ML/Vial 1000s	PG
6640009020810	Tip Pipet Style M28 Disp Plastic 1000s	PG
6640010689613	Tube Capillary Microhemocrit Glass K28 500s	PG
6515013851697	Tube Drain Surgical Penrose 7/8x12IN 200s	PG
6630011081444	Tube Blood Collecting Grn Cap 5ML w/Lith Hep 100s	PG
6630001451137	Tube Blood Collecting Glass 7ML Type II Size 2 100s	PG
6630011198575	Tube Blood Collecting Vacuum 7ML Solution 100s	PG
6630002504264	Tube Blood Collecting Type I Size 1 5ML 100s	PG
6630012337592	Tube Venous Centrifugal Hematology	PG
6550007644729	Wright' s Staining Solution Romanowski 1QT	BT

X-Ray View Selection

An examination of the x-ray data gathered by the PC surveys showed that the SMEs identified 38 types of x-ray views that would be required at the Second Echelon. As with the laboratory tests, each x-ray view was assigned to an appropriate PC. Table 6 shows the x-ray views identified by the SMEs.

Table 6
X-ray Views Required at Echelon II

Skull Series	Wrist Series
Skull PA	Elbow Series
Skull Lateral	Forearm Series
Facial Bones	Humerus Series
Sinuses Waters	Shoulder Series
Mandible Series	Shoulder AP
Cervical Spine Series	Scapula Lateral
Thoracic Spine Series	Clavicle Series
Lumbar Spine Series	Foot Series
Sacro-Iliac Joint Series	Ankle Series
Chest AP/PA	Leg Tibia/Fibia Series
Chest Lateral	Knee Series
Abdomen Series	Knee AP
Abdomen (Supine)	Knee Lateral
Abdomen (Upright)	Femur Series
Gall Bladder Series	Hip Series
Cystogram	Pelvis AP
Urethrogram	Ilium Oblique
Hand Series	Interpretation of Film Studies*

*While not a view, this is included to show the complete list of tasks identified for x-ray.

Each of these views requires a varying amount of x-ray AMAL supplies to conduct. The primary determinant of resource usage is the number of films required to produce the view. The number of films required to produce the views listed in Table 6 range from a low of 2 (Skull Lateral) to a high of 12 (Knee Series). To determine how this variation in resources

would vary based upon type of patient stream encountered, the mean number of films for each of 4 PC categories was calculated. Figure 6 presents the results.

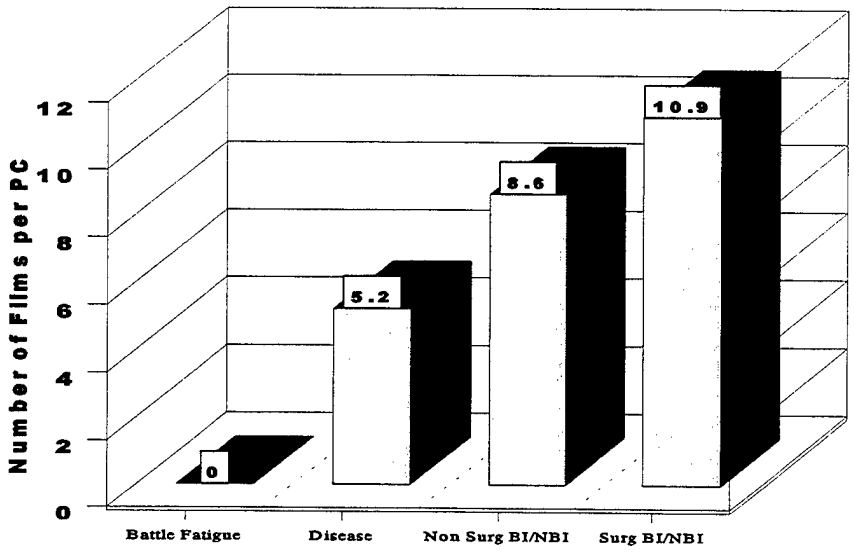

Fig. 6. Average number of films for each PC category

It can be seen from Figure 6 that the average number of films required per PC is highly related to injury severity. Clearly, the most films per PC are required for those casualties requiring a resuscitative/stabilizing surgical procedure prior to evacuation. These results suggest that during high levels of combat intensity, the x-ray facility should be stocked to handle a minimum of 10 films per patient.

X-Ray View Materiel Requirements

Once the views required at the Second Echelon had been identified and their relative impact on x-ray resources established, it was necessary to determine how adequately the current Marine Corps x-ray AMALS were able to meet these requirements. This was accomplished by examining the current x-ray equipment AMAL 627 and the current x-ray consumable AMAL 649 and matching each item within these 2 supply blocks with the film view requiring the item. This process was important because it established the clinical

requirement for each item. Appendix C lists the 38 x-ray tasks and the consumables and equipment required to conduct them.

Results of this analysis revealed that the current Marine Corps x-ray AMALS were capable of producing each of the film views identified by the SMEs. The results further showed 2 items for which a clinical requirement could not be identified and therefore could be considered excess items.

X-ray equipment AMAL requirements. With each equipment item required to conduct all Echelon II x-ray tasks identified and their clinical requirements established, the x-ray equipment AMAL 627 could then be configured. The number of x-ray suites to be established for each Surgical Company of the MEF is 2. A total capability of 17 x-ray suites is defined for a notational MEF (Marine Corps Commandant message No. R-100105Z, SEP 96). The results of the present study are presented in terms of the equipment requirements for the establishment of one of these x-ray suites. Table 7 shows the proposed AMAL 627, listing NSN, item nomenclature, quantity of each item required, weight of item, cube of item and total weight and cube of the AMAL.

It can be seen from Table 7 that the quantity of each item stocked in the proposed AMAL 627 provides the capability to conduct each of the 38 x-ray tasks identified by the SMEs. The proposed AMAL 627 contains 20 unique items, representing a reduction of 1 item (5%). Because a clinical requirement could not be found, the quantity of some of the items was also reduced. The effect of these reductions are reflected in the weight and cube of the proposed 627. Table 7 shows that the total weight of the proposed 627 is 863.38 pounds and the total cube is 156.63. This compares to 1002.72 pounds and 163.43 cubic feet in the current 627. By establishing the clinical requirement for each item, the proposed AMAL 627 is 139.34 pounds (13.9%) lighter and 6.8 cubic feet smaller (4.2%) than the current Marine Corps AMAL.

X-ray consumable AMAL requirements. With each item required to conduct all Echelon II x-ray tasks identified, the consumable AMAL 649 could also be configured. The final list of consumable items to be included in proposed AMAL 649 are presented in Table 8. As with the equipment AMAL, only items with an identified clinical requirement that could

Table 7
Proposed Marine Corps X-Ray Equipment AMAL 627

NSN	Nomenclature	Quantity	Unit Issue	Unit Weight	Unit Cube
6532009359765	Apron X-ray Protective Coat 38x24 Lt Weight	2	EA	9.00	0.848
6525013599304	Bottle Waste X-ray Processor 5 GL Capacity	2	EA	3.50	0.030
6525006007900	Caliper X-ray Technique L-shape Aluminum	1	EA	0.94	0.178
6525014280199	Cassette Radiographic Film w/Lanex 24x30CM	6	EA	4.50	0.109
6525014280220	Cassette Radiographic Film w/Lanex 35x43CM	6	EA	8.33	0.220
6525013456090	Chamber X-ray Film Processing Darkroom	1	EA	30.00	14.700
6525006031250	Grid Radio 10x12 Linear Focused Type Str Wafer	2	EA	7.67	0.250
6525006031310	Grid Radio 14x17 Linear Focused Type Str Wafer	2	EA	12.00	0.400
6665002999825	Holder Radiac Detecting Element Steel Style 12C	12	EA	0.15	0.003
6525011608381	Illuminator X-ray Film Fluorescent Illuminated	1	EA	25.00	1.477
6240005833668	Lamp Fluorescent 15 Watts	8	EA	0.00	0.00
6240007818291	Lamp Incandescent 11 Watts	4	EA	0.00	0.00
6650005143531	Magnifier Glass Monocular 1xNomial Circular 4IN	1	EA	0.30	0.022
6525006080620	Marker Set X-ray Film Identification Gothic Letter	1	SE	14.17	0.342
6525013862603	Processing Machine Rad Film Auto Table Top	1	EA	149.00	91.800
6525006127500	Rule Anatomical Transparent 2x18	1	EA	0.06	0.010
6525011669033	Screen X-ray Protective Mobile 6x2.5 FT	1	EA	0.16	5.473
6525012205078	Table Radiographic Portable Adj 72x27	1	EA	200.00	37.020
6685006167950	Thermometer Self-Indicting Bimetallic 8.5IN	1	EA	0.63	0.052
6525012005800	X-ray Apparatus Radio Port 25-40MA Low Cap	1	EA	300.00	0.500
	TOTAL WEIGHT = Σ (Quantity x Unit Weight) in pounds		=	**863.38**	
	TOTAL CUBE = Σ (Quantity x Unit Cube) in cubic feet		=		**156.63**

Table 8

Proposed Marine Corps X-Ray Consumable AMAL 649

NSN	Nomenclature	Unit Issue
6525013274196	Additive Developer X-ray Film 5 Fl Oz	BT
6510002035000	Adhesive Tape Surgical 3INx5YD	RL
6525013507762	Developer X-ray Film Processing Liquid 12s	PG
6505010083323	Diatrizoate Meglumine & Diatrizoate Sodium	PG
7530006124000	Envelope Photographic Negative 17.5x14.5 100s	HD
6525013548682	Film Radiographic Kodak T-Mat H/Ra 24x30CM 100s	PG
6525013706249	Film Radiographic Kodak T-Mat H/Ra 35x43CM 100s	PG
6525013505966	Fixer X-ray Film Processing 18s	PG
7540006344160	Form Printed Radiographic Rpt 8x10.5 100s	HD
6525008807257	Label X-ray Film Identification Pressure Sensitive	PG
6515007542838	Needle Hypo C13A GP 21GA 1.185-1.312" Luer	PG
6515012899839	Syringe Irrigating Surg Disp 60ML 60s	PG
6515011534851	Syringe Luer Plas Disp Reg Luer Tip 60 ML	BX

be related to a particular task conducted in x-ray were included. It should be noted that the amount of each consumable item has been limited to a quantity of a single package based upon the primary unit of issue identified in the National Stock System.

Although the type of consumable items was identified, the number of each type of consumable, as with the laboratory consumable AMAL was not calculated in the present study. As previously indicated, the consumable supply stream is highly dependent upon the anticipated casualty stream. The effects of estimating consumable requirements using an anticipated casualty stream will be presented in a future paper.

After identifying the clinically relevant consumable items, a comparison was conducted between the existing Marine Corps consumable AMAL 649 and the proposed 649. A total of 14 items are currently stocked in the 649. This compares to 13 in the proposed 649, representing a drop of only 1 item (7.1%).

The findings regarding the x-ray AMALS showed a smaller benefit using the NHRC model than those realized in the laboratory AMAL. This difference in the magnitude of findings can be explained by examining recent events regarding the configuration of the x-ray

AMALS. Citing findings revealed in Operation Desert Shield/Storm, the Marine Corps, in conjunction with the DMSB, embarked on an effort to fully upgrade the x-ray AMALS with state-of-the-art x-ray imaging devices and automatic daylight film processors. By doing so, the x-ray AMALS were greatly enhanced just prior to the completion of this study.

While the state-of-the-art equipment upgrades initiated by the DMSB/Marine Corps significantly enhanced the capability of the second Echelon x-ray function, SMEs in the NHRC study suggested additional modifications to the supply stream that could improve x-ray performance even further. When the new imaging devices and film processors were added to the x-ray AMALs, no corresponding changes were made to the film or to the film cassettes. While the current film and cassettes will work with the new equipment, a better match between these items and the new equipment would be desirable. Because the new x-ray apparatus is a low capacity model, double exposures would be required if the current film and cassettes remain. This will result in a degradation of exposure quality. To realize the maximum performance of the new x-ray apparatus, the NHRC proposed x-ray AMALs reflect an upgrade to film cassettes with "rare earth" screens and compatible film. Since the new film and cassettes were simply substituted for the old, no changes in weight or cube resulted.

Conclusions

This study's results clearly demonstrate the effectiveness of the NHRC model. The logistical load was lightened for forward units with no decrease in medical capability. In some cases, the medical capability was enhanced. The key factor responsible for this increased logistical efficiency is the identification of the clinical requirement of each and every item carried forward. Since this process also required documentation of the medical tasks to be performed forward, commanders, care providers and medical planners can achieve a higher level of preparedness through a greater awareness of what can be expected to be medically required across the range of potential battle injuries, diseases and non-battle injuries.

Furthermore, the process of establishing the clinical requirement for each supply item produced an audit trail, which, for the first time, gives logisticians and medical planners an objective management tool for maintaining and upgrading AMAL Class VIII medical materiel. The current management system relies upon periodic reviews to ensure the materiel stocked in the AMALs will adequately meet medical requirements. This process benefits from the participation of experienced SMEs, however, the criteria for determining

supply requirements depends upon a subjective interpretation of need. For example, in determining the supply requirements for the laboratory AMALs, SMEs are currently unable to relie upon an empirically established link between medical items and laboratory tasks and laboratory tasks and injury types. Instead, they develop materiel estimates upon what they perceive will be required by 100 generic patients. By providing an audit trail for each item, the supply requirements are clearly linked to the medical task requiring them. As medical technology changes, items may be added or deleted from the AMALs with greater assurance that the weight and cube will not exceed requirements.

The results presented in this paper do not adequately reflect the full capability of the NHRC design. The model has been sufficiently exercised to demonstrate its potential in reducing the logistical burden carried by forward Marine Corps units. Planned upgrades to the model, currently under development, will substantially increase its potential utility. This additional utility will be realized when the model not only produces the type of consumables required forward, as it now does but, when it can also predict the quantity of each type of consumable.

To do this requires inputting the anticipated casualty stream at the front-end of the model. Using a patient generator, such as PATGEN, a distribution of PCs can be produced from parameters describing the number of persons at risk, the mix of troops, the rate of escalation of troop strength as build-up proceeds, and geographical location of the conflict. The PC distribution yielded includes rates of injuries at each of the forward areas (Ia, Ib and II), expressed in the DEPMEDS codes used in the present study. Because the NHRC model expresses supply requirements in terms of PCs, the PC distribution may be fed into the model to produce the specific quantity of consumables a particular conflict is expected to draw. As this work nears completion, the NHRC model will be capable of predicting the full complement of Marine Corps medical materiel requirements based upon established clinical requirements.

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Appendix A - DEPMEDS Patient Condition List

PC#	DESCRIPTION
001	Cerebral concussion closed with/without nondepressed linear skull fracture severe - loss of consciousness from 2 to 12 hours
002	Cerebral concussion closed with/without nondepressed linear skull fracture moderate - loss of consciousness less than 2 hours
003	Cerebral contusion closed with/without nondepressed linear skull fracture severe - loss of consciousness greater than 24 hours with focal neurological deficit
004	Cerebral contusion closed with/without nondepressed linear skull fracture moderate - loss of consciousness from 12-24 hours without focal neurological deficit
005	Cerebral contusion closed with intracranial hematoma with/without nondepressed linear skull fracture - severe - large hematoma (including epidural hematoma) with rapidly deteriorating comatose patient
006	Cerebral contusion closed with nondepressed linear skull fracture severe - loss of consciousness greater than 24 hours with/without focal neurological deficit
007	Cerebral contusion closed with depressed skull fracture severe - with associated intracerebral hematoma and/or massive depression
008	Cerebral contusion closed with depressed skull fracture moderate - no associated hematoma or significant effect from depression
009	Cerebral contusion with open skull fracture severe - with intracranial fragments and/or depressed skull fracture; eyelid and eyeball laceration with retained intraocular foreign body
010	Cerebral contusion with open skull fracture moderate - without intracranial fragments and/or depressed skull fracture
011	Intracranial hemorrhage spontaneous nontraumatic all cases
012	Not assigned
013	Wound scalp open without cerebral injury or skull fracture severe - scalped with avulsion of tissue
014	Wound scalp open without cerebral injury or skull fracture moderate - scalp laceration
015	Fracture facial bones closed exclusive of mandible severe - multiple fractures
016	Fracture facial bones closed exclusive of mandible moderate - single fracture
017	Wound face jaws and neck open lacerated with associated fractures excluding spinal fractures severe - with airway obstruction
018	Wound face jaws and neck open lacerated with associated fractures excluding spinal fractures moderate - without airway obstruction; eyelid and eyeball laceration with retained intraocular foreign body

019 Wound face and neck open lacerated contused without fractures severe - with airway obstructions and/or major vessel involvement
020 Wound face and neck open lacerated contused without fractures moderate - without airway obstruction or major vessel involvement
021 Eye wound severe - loss of intraocular fluid with/without retinal detachment, with severe lid laceration, eye not salvageable
022 Eye wound lacerated moderate - without retinal detachment or retinal injury no foreign body retained without loss of vitreous fluid patient has hyphema eye salvageable
023 Hearing impairment severe
024 Hearing impairment moderate
025 Fracture spine closed without cord damage unstable lesion
026 Fracture spine closed without cord damage stable lesion
027 Fracture spine closed with cord damage cervical spine with respiratory involvement
028 Fracture spine closed with cord damage below cervical spine (progressive)
029 Fracture spine open with cord damage cervical spine with respiratory involvement
030 Fracture spine open with cord damage below cervical spine (progressive)
031 Intervertebral disc disorders with nerve root compression resistant to bed rest/traction
032 Intervertebral disc disorders with nerve root compression responding to bed rest/traction
033 Strains and sprains sacroiliac region severe - nonambulatory
034 Strains and sprains sacroiliac region moderate - ambulatory
035 Burn thermal superficial head and neck greater than 5% but less than 10% of total body area and/or eye involvement
036 Burn thermal superficial head and neck less than 5% of total body area and no eye involvement
037 Burn thermal partial thickness head and neck greater than 5% but less than 10% of total body area and/or eye involvement
038 Burn thermal partial thickness head and neck less than 5% of total body area and no eye involvement
039 Burn thermal full thickness head and neck greater than 5% but less than 10% of total body area with eye involvement
040 Burn thermal full thickness head and neck less than 5% of total body area and no eye involvement
041 Fracture clavicle closed all cases

042 Wound shoulder girdle open with bone injury severe - joint involvement
043 Wound shoulder girdle open with bone injury moderate - no joint involvement
044 Fracture humerus closed upper shaft all cases
045 Wound upper arm open penetrating lacerated without fracture severe - with nerve and/or vascular injury
046 Wound upper arm open penetrating lacerated without fracture moderate - without nerve or vascular injury
047 Wound upper arm open with fractures and nerve and vascular injury arm nonsalvageable
048 Wound upper arm open with fractures and nerve injury no vascular injury arm salvageable
049 Fracture radius and ulna closed severe - shafts of bones
050 Fracture radius and ulna closed moderate - colles fracture
051 Wound forearm open lacerated penetrating without bone nerve or vascular injury with major loss of muscle tissue severe - requiring major debridement
052 Wound forearm open lacerated penetrating without bone nerve or vascular injury moderate - not requiring major debridement
053 Wound forearm open lacerated penetrating with fracture and with nerve and vascular injury forearm not salvageable
054 Wound forearm open lacerated penetrating with fracture and with nerve and vascular injury forearm salvageable
055 Fracture hand or fingers closed severe - requiring closed reduction
056 Fracture hand and/or fingers closed moderate - not requiring closed reduction
057 Wound hand and/or fingers open lacerated without fractures severe - superficial and deep tendon involvement
058 Wound hand and/or fingers open lacerated without fractures moderate - no tendon involvement or limited to sublimis tendon involvement
059 Wound hand open lacerated contused crushed with fracture(s) all cases - involving fractures of carpals and/or metacarpals
060 Wound fingers open lacerated contused crushed with fracture(s) of phalangeals requiring rehabilitation
061 Crush injury upper extremity severe - limb not salvageable
062 Crush injury upper extremity moderate - limb salvageable
063 Not assigned
064 Dislocation shoulder closed all cases
065 Dislocation/fracture elbow closed acute all cases

066 Not assigned
067 Dislocation hand or wrist closed acute
068 Dislocation fingers closed acute
069 Amputation hand traumatic complete all cases
070 Amputation forearm traumatic complete all cases
071 Amputation full arm traumatic complete all cases
072 Sprain wrist closed acute all cases
073 Sprain thumb closed acute severe
074 Sprain fingers closed acute moderate - no thumb involvement
075 Burn thermal superficial upper extremities greater than 10% but less than 20% of total body area involved
076 Burn thermal superficial upper extremity less than 10% of total body area involved
077 Burn thermal partial thickness upper extremities greater than 10% but less than 20% of total body area involved
078 Burn thermal partial thickness upper extremity less than 10% of total body area involved
079 Burn thermal full thickness upper extremities greater than 10% but less than 20% of total body area involved
080 Burn thermal full thickness upper extremity less than 10% of total body area involved
081 Fracture ribs closed severe - multiple fractures
082 Fracture rib(s) closed moderate
083 Injury lung closed (blast crush) with pneumohemothorax severe - one lung with pulmonary contusion and acute severe respiratory distress
084 Injury lung closed (blast crush) with pneumohemothorax moderate - one lung with pulmonary contusion and respiratory distress
085 Wound thorax (anterior or posterior) open superficial lacerated contused abraded avulsed requiring major debridement
086 Wound thorax (anterior or posterior) open superficial lacerated contused abraded avulsed not requiring major debridement
087 Wound thorax (anterior or posterior) open penetrating with associated rib fractures and pneumohemothorax acute severe respiratory distress
088 Wound thorax (anterior or posterior) open penetrating with associated rib fractures and pneumohemothorax moderate respiratory distress

089 Not assigned
090 Burn thermal superficial trunk greater than 20% but less than 30% of total body area involved
091 Burn thermal superficial trunk greater than 10% but less than 20% of total body area involved
092 Burn thermal partial thickness trunk greater than 20% but less than 30% of total body area involved
093 Burn thermal partial thickness trunk greater than 10% but less than 20% of total body area involved
094 Burn thermal full thickness trunk greater than 20% but less than 30% of total body area involved
095 Burn thermal full thickness trunk greater than 10% but less than 20% of total body area involved
096 Wound abdominal wall (anterior or posterior) lacerated abraded contused avulsed without entering abdominal cavity severe - requiring major debridement
097 Wound abdominal wall (anterior or posterior) lacerated abraded contused avulsed without entering abdominal cavity not requiring major debridement
098 Wound liver closed acute (crush fracture) major liver damage
099 Wound liver closed acute (crush fracture) minor liver damage
100 Wound spleen closed acute (crush fracture) all cases
101 Wound abdominal cavity open with lacerating penetrating perforating wound to the large bowel
102 Wound abdominal cavity open with lacerating penetrating perforating wound to the small bowel without major or multiple resections
103 Wound abdominal cavity open with penetrating perforating wound of liver major damage
104 Wound abdominal cavity open with penetrating perforating abdominal wound with lacerated liver
105 Wound abdominal cavity open with penetrating perforating wound of spleen
106 Wound abdominal cavity open with lacerated penetrated perforated wound with shattered kidney
107 Wound abdominal cavity open with lacerated penetrating perforating wound with lacerated kidney initially repaired but subsequent nephrectomy
108 Wound abdominal cavity open with lacerated penetrating perforating wound with shattered bladder
109 Wound abdominal cavity open with lacerated penetrating perforating wound with lacerated bladder
110 Wound buttocks severe - open lacerated penetrating perforating and avulsed

111 Wound buttocks moderate - open lacerated contused and abraded
112 Displaced fracture of pelvis closed with associated soft tissue damage and pelvic organ damage
113 Nondisplaced fracture of pelvis closed with associated soft tissue damage
114 Wound abdomen open with pelvic fracture and penetrating perforating wounds to multiple pelvic structures (male or female)
115 Wound abdomen open with pelvic fracture and penetrating perforating wounds to pelvic colon only (male or female)
116 Wound external genitalia male severe - lacerated avulsed crushed
117 Wound external genitalia male moderate - abraded and contused
118 Wound external genitalia female severe - lacerated avulsed crushed
119 Wound external genitalia female moderate - abraded contused
120 Fracture closed femur shaft all cases
121 Wound thigh open without fracture nerve or vascular injury requiring major debridement
122 Wound thigh open without fracture nerve or vascular injury not requiring major debridement
123 Wound thigh open lacerated penetrating perforating with fracture and nerve/vascular injury limb not salvageable
124 Wound thigh open lacerated penetrating perforating with fracture and nerve and/or vascular injury limb salvageable
125 Wound knee open lacerated penetrating perforating with joint space penetration shattered knee
126 Wound knee open lacerated penetrating perforating with joint space penetration articular cartilage damage no bone injury
127 Fracture closed tibia and fibula shaft all cases
128 Wound lower leg open lacerated penetrating perforating without fractures requiring major debridement
129 Wound lower leg open lacerated penetrating perforating without fractures not requiring major debridement
130 Wound lower leg open lacerated penetrating perforating with fracture and nerve/vascular injury limb not salvageable
131 Wound lower leg open lacerated penetrating perforating with fracture and nerve and/or vascular injury limb salvageable
132 Fracture ankle/foot closed displaced requiring reduction
133 Fracture ankle/foot closed nondisplaced not requiring reduction
134 Wound ankle foot toes open lacerated contused without fractures but requiring major debridement
135 Wound ankle foot toes open lacerated contused without fractures not requiring major debridement
136 Wound ankle foot toes open penetrating perforating with fractures and nerve/vascular injury limb not salvageable

137 Wound ankle foot toes open penetrating perforating with fractures and nerve and/or vascular injury limb salvageable
138 Crush injury lower extremity limb not salvageable
139 Crush injury lower extremity limb salvageable
140 Dislocation hip closed acute all cases
141 Tear ligaments knee acute complete rupture
142 Tear ligaments knee acute incomplete rupture
143 Dislocation toes closed acute all cases
144 Amputation foot traumatic complete all cases
145 Amputation below knee traumatic complete all cases
146 Amputation traumatic complete requiring hip disarticulation
147 Amputation above knee traumatic complete
148 Sprain ankle closed acute with complete ligament rupture
149 Sprain ankle closed acute grade 2 incomplete ligament rupture
150 Burn thermal superficial lower extremities and genitalia greater than 30% but less than 40% of total body area involved
151 Burn thermal superficial lower extremity and genitalia greater than 15% but less than 30% of total body area involved
152 Burn thermal partial thickness lower extremities and genitalia greater than 30% but less than 40% of total body area involved
153 Burn thermal partial thickness lower extremity and genitalia greater than 15% but less than 30% of total body area involved
154 Burn thermal full thickness lower extremities and genitalia greater than 30% but less than 40% of total body area involved
155 Burn thermal full thickness lower extremity and genitalia greater than 15% but less than 30% of total body area involved
156 Blisters hand fingers foot toes due to friction acute moderate all cases
157 Insect bites and stings (unspecified body area) with systemic symptoms and/or respiratory difficulty
158 Bites and stings (unspecified body area) moderate localized symptoms
159 MIW brain and chest with sucking chest wound and pneumohemothorax
160 MIW brain and abdomen with penetrating perforating wound colon
161 MIW brain and abdomen with penetrating perforating wound kidney
162 MIW brain and abdomen with penetrating perforating wound bladder

163 MIW brain and abdomen with shock and penetrating perforating wound spleen
164 MIW brain and abdomen with shock and penetrating perforating wound liver
165 MIW brain and lower limbs requiring bilateral above knee amputations
166 MIW chest with pneumohemothorax and abdomen with penetrating wound colon
167 MIW chest with pneumohemothorax and abdomen with penetrating perforating wound kidney
168 MIW chest with pneumohemothorax and abdomen with perforating wound bladder
169 MIW chest with pneumohemothorax and abdomen with penetrating perforating wound spleen
170 MIW chest with pneumohemothorax and abdomen with penetrating perforating wound liver
171 MIW chest with pneumohemothorax and limbs with fracture and vascular injury
172 MIW abdomen with penetrating perforating wound of colon and bladder
173 MIW abdomen with penetrating perforating wound of colon and spleen
174 MIW abdomen with penetrating perforating wound of colon and liver
175 MIW abdomen and limbs with penetrating perforating wound of colon and open fracture and neurovascular injury of salvageable lower limb
176 MIW abdomen and pelvis with penetrating perforating wound of liver and kidney
177 MIW abdomen and pelvis with penetrating perforating wounds of spleen and bladder
178 MIW abdomen pelvis limbs with fracture and neurovascular injury limb salvageable and penetrating wound kidney
179 MIW abdomen pelvis limbs without fracture or neurovascular injury and penetrating perforating wound bladder
180 MIW abdomen and lower limbs with fracture and nerve injury with penetrating wound of spleen with full thickness burns to greater than 20% of TBSA
181 MIW abdomen and limbs without fracture or nerve injury with penetrating wound of liver
182 MIW chest with pneumohemothorax soft tissue injury to upper limbs and penetrating wound of brain
183 MIW chest with pneumohemothorax soft tissue injury to upper limbs and abdomen with wound of colon
184 MIW chest with pneumohemothorax pelvis and abdomen with wound of colon and bladder
185 MIW abdomen and chest with multiple organ damage
186 Multiple nonperforating fragment wounds of skin and soft tissue

187 Trench foot immersion foot severe - vesicle formation
188 Trench foot immersion foot moderate - no vesicle formation
189 Not assigned
190 Frostbite full skin thickness or deeper involvement
191 Frostbite less than full skin thickness
192 Hypothermia all cases
193 Heat stroke
194 Heat exhaustion
195 Heat cramps all cases
196 Appendicitis acute with perforation rupture peritonitis
197 Appendicitis acute without perforation rupture peritonitis
198 Inguinal hernia complicated direct or indirect sliding incarceration of bowel
199 Inguinal hernia uncomplicated direct or indirect no sliding no incarceration of bowel or bladder
200 Internal derangement of knee chronic with torn meniscus and/or ligament laxity
201 Strain lumbosacral sacroiliac joint chronic all cases
202 Eczema dermatitis seborrheic contact others affecting weight bearing or pressure areas
203 Eczema dermatitis seborrheic contact others not affecting weight bearing areas
204 Boils furuncles pyoderma requiring surgery
205 Boils furuncles pyoderma all other cases
206 Cellulitis involving face or weight bearing areas
207 Cellulitis other than face or weight bearing areas
208 Dermatophytosis severe - affecting feet
209 Dermatophytosis all other cases
210 Pediculosis all cases
211 Scabies all cases
212 Pilonidal cyst/abscess requiring major excision

213 Pilonidal cyst/abscess requiring minor incision
214 Ingrown toenails bilateral with secondary infections unresolvable at Echelon 2
215 Ingrown toenails without secondary infection
216 Herpes simplex and zoster without encephalitis all types all cases
217 Not assigned
218 Not assigned
219 Hyperhidrosis all cases
220 Blepharitis all cases
221 Conjunctivitis severe all cases
222 Conjunctivitis moderate all cases
223 Corneal ulcer
224 Corneal abrasion
225 Iridocyclitis acute marked visual impairment
226 Iridocyclitis acute minimal visual impairment
227 Refraction and accommodation disorders refraction required
228 Refraction and accommodation disorders replacement of spectacles required
229 Otitis externa all cases
230 Otitis media acute suppurative all cases
231 Mastoiditis chronic all cases
232 Allergic rhinitis all cases
233 Upper respiratory infections acute all cases
234 Bronchitis acute all cases
235 Asthma with disabling symptoms or repeated attacks
236 Asthma other cases
237 Not assigned
238 Not assigned

239 Acute respiratory disease severe
240 Acute respiratory disease moderate
241 Not assigned
242 Not assigned
243 Food poisoning all organisms disabling symptoms
244 Food poisoning all organisms moderate symptoms
245 Diarrheal disease severe
246 Diarrheal disease moderate
247 Not assigned
248 Gastritis acute all cases
249 Peptic ulcer gastric or duodenal penetrating and/or perforating
250 Peptic ulcer gastric or duodenal uncomplicated
251 Regional ileitis disabling symptoms unresponsive to treatment
252 Regional ileitis responds to treatment
253 Helminthiasis all cases
254 Not assigned
255 Migraine all cases
256 Hemorrhoidal disease all cases
257 Not assigned
258 Severe hypertension
259 Ischemic heart disease
260 Phlebitis deep vein involvement
261 Not assigned
262 Tenosynovitis elbow wrist shoulders etc.
263 Meningo-encephalitis uncomplicated
264 Meningo-encephalitis complicated

265 Near drowning without cervical spine injury or hypothermia all cases
266 Toxic inhalation including burn-related respiratory injuries severe all cases
267 Not assigned
268 White phosphorus burns resultant partial thickness burns < 40% TBSA all cases
269 Sexually transmitted diseases (STD) urethritis
270 Sexually transmitted diseases (STD) genital ulcers and/or adenopathy
271 Sexually transmitted diseases (STD) complicated
272 Glomerulonephritis acute
273 Glomerulonephritis chronic
274 Pyelonephritis acute secondary to obstruction
275 Pyelonephritis acute no obstruction
276 Nephrotic syndrome all cases
277 Ureteral calculus causing obstruction impacted
278 Ureteral calculus not causing obstruction
279 Epididymitis cystitis prostatitis acute all cases
280 Balanoposthitis all cases
281 Not assigned
282 Infectious mononucleosis all cases
283 Hepatitis infectious viral all cases
284 Not assigned
285 Cholecystitis acute with stones all cases
286 Pancreatitis acute all cases
287 Cirrhosis all cases
288 Not assigned
289 Neoplasms malignant
290 Neoplasms benign

291 Abnormal uterine bleeding
292 Dysmenorrhea amenorrhea
293 Pelvic inflammatory disease (PID) all cases
294 Cervicitis endocervicitis with symptomatic leukorrhea
295 Vulvovaginitis
296 Not assigned
297 Tubal pregnancy all cases
298 Not assigned
299 Abortion spontaneous with hemorrhage
300 Not assigned
301 Psychosis
302 Conduct disorders
303 Non-psychotic mental disorders
304 Stress reaction severe unstable slow improvement
305 Stress reaction severe stable slow improvement
306 Alcohol dependency syndrome moderate
307 Alcohol misuse simple intoxication
308 Drug dependency (other than alcohol) severe
309 Drug misuse (other than alcohol) mild or moderate
310 Stress reaction mild/moderate
311 Eye wound lacerated penetrated with retinal injury eye salvageable
312 Wound knee open lacerated penetrating perforating with joint space penetration no bone or articular cartilage
313 Wound abdominal cavity open with lacerated penetrating perforating wound kidney moderate - kidney salvageable
314 Stress reaction severe unstable delayed improvement
315 Stress reaction severe unstable persisting
316 Alcohol dependency severe - impending or actual DTs

317 Drug misuse (other than alcohol) severe - atypical no dependency
318 Stress reaction severe - rapid improvement
319 Wound fingers open lacerated contused crushed with fracture(s) of phalangeals not requiring rehabilitation
320 Dislocation/subluxation temporomandibular joint without fracture chronic requiring correction
321 Dislocation/subluxation temporomandibular joint without fracture acute initial injury
322 Fracture mandible with/without oral laceration without airway involvement unstable severe requiring open reduction
323 Fracture mandible with/without oral laceration without airway involvement mild displacement stable
324 Stress reaction severe stable - delayed improvement
325 Stress reaction severe stable persisting
326 Not assigned
327 Not assigned
328 Animal bites and rabies exposure
329 Trachoma all cases
330 Schistosomiasis all cases
331 Malaria severe - all species
332 Malaria moderate - all species
333 Febrile illness acute severe - except malaria and pneumonia
334 Febrile illness acute moderate
335 Snake bite
336 Not assigned
337 Not assigned
338 Not assigned
339 Cutaneous ulcers including leishmaniasis
340 Not assigned
341 Not assigned
342 Not assigned

343 Not assigned
344 Not assigned
345 Not assigned
346 Eye wound directed energy induced (laser) severe of macula and/or optic nerve with vitreous blood severe visual loss one or both eyes
347 Eye wound directed energy induced (laser/rfr) moderate to severe posterior nonmacular nonoptic nerve visual loss secondary to vitreous blood
348 Eye wound directed energy induced (laser) moderate nonmacular nonoptic nerve no vitreous blood
349 Eye wound directed energy induced (laser/rfr) mild to moderate anterior pain with photophobia and disruption of corneal integrity
350 Eye wound directed energy induced (laser) mild flash blindness no permanent damage

Appendix B - Equipment & Consumable Requirements for Laboratory Tasks

Laboratory Task: 595 BLOOD GAS ESTIMATION

EQUIPMENT

Nomenclature	Amount
Analyzer Carbon Dioxide Hand Operated	1
Chair Rotary Style AG12 w/Footrest Spider	1
Demineralizer Water Ion Exchange 10W	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1
Rack Test Tube Laboratory 10x4.25x2.5IN	1
Refrigerator Mechanical Biologicals 115V	1
Ruler Wood w/Bevel 12IN Sing Metal Edging	1
Sink Unit Surgical Scrub Field Portable 115V	1
Stapler Paper Fastening Office Desk Gray	1
Sterilizer Surgical Instrument & Dressing	1
Table Folding Legs: Laboratory	1

CONSUMABLES

Nomenclature	Amount	Um
Bag Biohazard Disposable Red/Orange	1	EA
Bag Sterilization/Biohazard Disp 36x24IN	1	EA
Book Memorandum 10.5x8IN Ruled	1	EA
Cartridge H_2O Demineralize Ion Exchange	1	EA
Gloves Patient Exam & Treat Plastic Disp LG	1	PR
Pen Ballpoint Retractable Med Pt Black	1	EA
Rubber Bands Size #33	2	EA
SF546 Chem I (3 PT)	1	EA
Staples Paper Fastening Office Type	2	EA
Test Kit Serum Carbon Dioxide Determination	1	EA

Laboratory Task: 596 ELECTROLYTE LEVELS (Na, K, Cl, CO_2)

EQUIPMENT

Nomenclature	Amount
Analyzer Module Clinical Chem Ektachem DT60	1
Analyzer Clinical Chemistry Ektachem DT60	1
Centrifuge Lab Battery Powered 9V	1
Chair Rotary Style AG12 w/Footrest Spider	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1
Rack Test Tube Laboratory 10x4.25x2.5IN	1
Refrigerator Mechanical Biologicals 115V	1
Sink Unit Surgical Scrub Field Portable 115V	1
Sterilizer Surgical Instrument & Dressing	1
Table Folding Legs: Laboratory	1

CONSUMABLES

Nomenclature	Amount	Um
Bag Biohazard Disposable Red/Orange	1	EA
Bag Sterilization/Biohazard Disp 36x24IN	1	EA
Book Memorandum 10.5x8IN Ruled	1	EA
Control Human Serum f/Dry Chem Abnormal	1	EA
Control Human Serum f/Dry Chem Normal	1	EA
Disp Contain Hypodermic Needle & Syringe Plas	1	EA
Gloves Patient Exam & Treat Plastic Disp LG	1	PR
Holder Blood Collecting Tube Plas Polyprop	1	EA
Needle Hypodermic Ster Disp Mat 20GA	1	EA
Pad Isopro Alcohol Impregnated 2.6x1.8IN	1	EA
Pen Ballpoint Retractable Med Pt Black	1	EA
Pencil Red Glazed Extra Thick 6.25IN	1	EA
Povidone-Iodine Cleansing Sol USP 7.5%	0.2	OZ
Reference Standard Sol Sodium Potas Chl	1	EA
Reference Standard/Dilut Set Blood Chem	1	EA
Rubber Bands Size #33	2	EA
SF546 Chem I (3 PT)	1	EA
Sponge Surg Gauze Compressed 2x2IN White	2	EA
Staples Paper Fastening Office Type	2	EA
Test Slide Carbon Dioxide Determination	1	EA
Test Slide Chloride Determination	1	EA
Test Slide Potassium Determination Disp	1	EA
Test Slide Sodium Determination Disp	1	EA
Tube Drain Surgical Penrose 7/8x12IN	1	EA
Tube Blood Collecting Glass 7ML Type II Size 2	1	EA

Laboratory Task: 599 SERUM CREATININE LEVEL

EQUIPMENT

Nomenclature	Amount
Analyzer Clinical Chemistry Piccolo	1
Chair Rotary Style AG12 w/Footrest Spider	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1
Rack Test Tube Laboratory 10x4.25x2.5IN	1
Refrigerator Mechanical Biologicals 115V	1
Sink Unit Surgical Scrub Field Portable 115V	1
Sterilizer Surgical Instrument & Dressing	1
Table Folding Legs: Laboratory	1

CONSUMABLES

Nomenclature	Amount	Um
Bag Biohazard Disposable Red/Orange	1	EA
Bag Sterilization/Biohazard Disp 36x24IN	1	EA
Book Memorandum 10.5x8IN Ruled	1	EA
Disp Contain Hypodermic Needle & Syringe Plas	1	EA
Gloves Patient Exam & Treat Plastic Disp LG	1	PR
Holder Blood Collecting Tube Plas Polyprop	1	EA
Lancet Finger Bleeding	1	EA
Needle Hypodermic Ster Disp Mat 20GA	1	EA
Pad Isopro Alcohol Impregnated 2.6x1.8IN	1	EA
Pencil Red Glazed Extra Thick 6.25IN	1	EA
Pipet Lithium Heparinized	1	EA
Pipet Transfer 1.5ML Capacity Disp	1	EA
Povidone-Iodine Cleansing Sol USP 7.5%	0.2	OZ
Reagent Rotor Piccolo General Health 11 Test	1	EA
Sponge Surg Gauze Compressed 2x2IN White	2	EA
Tube Drain Surgical Penrose 7/8x12IN	1	EA
Tube Blood Collect Grn Cap 5ML w/Lith Hep	1	EA

Laboratory Task: 601 SGPT LEVEL

EQUIPMENT

Nomenclature	Amount
Analyzer Clinical Chemistry Piccolo	1
Chair Rotary Style AG12 w/Footrest Spider	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1
Rack Test Tube Laboratory 10x4.25x2.5IN	1
Refrigerator Mechanical Biologicals 115V	1
Sink Unit Surgical Scrub Field Portable 115V	1
Sterilizer Surgical Instrument & Dressing	1
Table Folding Legs: Laboratory	1

CONSUMABLES

Nomenclature	Amount	Um
Bag Biohazard Disposable Red/Orange	1	EA
Bag Sterilization/Biohazard Disp 36x24IN	1	EA
Book Memorandum 10.5x8IN Ruled	1	EA
Disp Contain Hypodermic Needle & Syringe Plas	1	EA
Gloves Patient Exam & Treat Plastic Disp LG	1	PR
Holder Blood Collecting Tube Plas Polyprop	1	EA
Lancet Finger Bleeding	1	EA
Needle Hypodermic Ster Disp Mat 20GA	1	EA
Pad Isopro Alcohol Impregnated 2.6x1.8IN	1	EA
Pencil Red Glazed Extra Thick 6.25IN	1	EA
*Pipet Lithium Heparinized	1	EA
*Pipet Transfer 1.5ML Capacity Disp	1	EA
Povidone-Iodine Cleansing Sol USP 7.5%	0.2	OZ
*Reagent Rotor Piccolo Liver Panel 08 Test	1	EA
Sponge Surg Gauze Compressed 2x2IN White	2	EA
Tube Drain Surgical Penrose 7/8x12IN	1	EA
*Tube Blood Collect Grn Cap 5ML w/Lith Hep	1	EA

Laboratory Task: 603 BLOOD GLUCOSE LEVEL

EQUIPMENT

Nomenclature	Amount
Analyzer Clinical Chemistry Piccolo	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1
Rack Test Tube Laboratory 10x4.25x2.5IN	1
Refrigerator Mechanical Biologicals 115V	1
Sink Unit Surgical Scrub Field Portable 115V	1
Sterilizer Surgical Instrument & Dressing	1
Table Folding Legs: Laboratory	1

CONSUMABLES

Nomenclature	Amount	Um
Bag Biohazard Disposable Red/Orange	1	EA
Bag Sterilization/Biohazard Disp 36x24IN	1	EA
Book Memorandum 10.5x8IN Ruled	1	EA
Disp Contain Hypodermic Needle & Syringe Plas	1	EA
Gloves Patient Exam & Treat Plastic Disp LG	1	PR
Holder Blood Collecting Tube Plas Polyprop	1	EA
Lancet Finger Bleeding	1	EA
Needle Hypodermic Ster Disp Mat 20GA	1	EA
Pad Isopro Alcohol Impregnated 2.6x1.8IN	1	EA
Pencil Red Glazed Extra Thick 6.25IN	1	EA
Pipet Lithium Heparinized	1	EA
Pipet Transfer 1.5ML Capacity Disp	1	EA
Povidone-Iodine Cleansing Sol USP 7.5%	0.2	OZ
Reagent Rotor Piccolo General Health 11 Test	1	EA
Sponge Surg Gauze Compressed 2x2IN White	2	EA
Tube Drain Surgical Penrose 7/8x12IN	1	EA
Tube Blood Collect Grn Cap 5ML w/Lith Hep	1	EA

Laboratory Task: 604 BUN LEVEL

EQUIPMENT

Nomenclature	Amount
Analyzer Clinical Chemistry Piccolo	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1
Rack Test Tube Laboratory 10x4.25x2.5IN	1
Refrigerator Mechanical Biologicals 115V	1
Sink Unit Surgical Scrub Field Portable 115V	1
Sterilizer Surgical Instrument & Dressing	1
Table Folding Legs: Laboratory	1

CONSUMABLES

Nomenclature	Amount	Um
Bag Biohazard Disposable Red/Orange	1	EA
Bag Sterilization/Biohazard Disp 36x24IN	1	EA
Book Memorandum 10.5x8IN Ruled	1	EA
Disp Contain Hypodermic Needle & Syringe Plas	1	EA
Gloves Patient Exam & Treat Plastic Disp LG	1	PR
Holder Blood Collecting Tube Plas Polyprop	1	EA
Lancet Finger Bleeding	1	EA
Needle Hypodermic Ster Disp Mat 20GA	1	EA
Pad Isopro Alcohol Impregnated 2.6x1.8IN	1	EA
Pencil Red Glazed Extra Thick 6.25IN	1	EA
Pipet Lithium Heparinized	1	EA
Pipet Transfer 1.5ML Capacity Disp	1	EA
Povidone-Iodine Cleansing Sol USP 7.5%	0.2	OZ
Reagent Rotor Piccolo General Health 11 Test	1	EA
Sponge Surg Gauze Compressed 2x2IN White	2	EA
Tube Drain Surgical Penrose 7/8x12IN	1	EA
Tube Blood Collect Grn Cap 5ML w/Lith Hep	1	EA

Laboratory Task: 605 SERUM BILIRUBIN LEVEL

EQUIPMENT

Nomenclature	Amount
Analyzer Clinical Chemistry Piccolo	1
Chair Rotary Style AG12 w/Footrest Spider	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1
Refrigerator Mechanical Biologicals 115V	1
Sink Unit Surgical Scrub Field Portable 115V	1
Sterilizer Surgical Instrument & Dressing	1
Table Folding Legs: Laboratory	1

CONSUMABLES

Nomenclature	Amount	Um
Bag Biohazard Disposable Red/Orange	1	EA
Bag Sterilization/Biohazard Disp 36x24IN	1	EA
Disp Contain Hypodermic Needle & Syringe Plas	1	EA
Gloves Patient Exam & Treat Plastic Disp LG	1	EA
Holder Blood Collecting Tube Plas Polyprop	1	EA
Lancet Finger Bleeding	1	EA
Needle Hypodermic Ster Disp Mat 20GA	1	EA
Pad Isopro Alcohol Impregnated 2.6x1.8IN	1	EA
Pencil Red Glazed Extra Thick 6.25IN	1	EA
*Pipet Lithium Heparinized	1	EA
*Pipet Transfer 1.5ML Capacity Disp	1	EA
Povidone-Iodine Cleansing Sol USP 7.5%	0.2	OZ
*Reagent Rotor Piccolo General Health 11 Test	1	EA
Sponge Surg Gauze Compressed 2x2IN White	2	EA
Tube Drain Surgical Penrose 7/8x12IN	1	EA
*Tube Blood Collect Grn Cap 5ML w/Lith Hep	1	EA

Laboratory Task: 612 COMPLETE BLOOD COUNT (CBC)

EQUIPMENT

Nomenclature	Amount
Analyzer Centrifugal Hematology 120/220V	1
Chair Rotary Style AG12 w/Footrest Spider	1
Counter Blood Cells Differential	1
Hemacytometer Set Complete w/Case	1
Microscope Optical Binocular 120/230V	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1
Pipet Blood Diluting Thoma Glass M11 White	1
Pipet Blood Diluting Thoma Glass w/o Tubing	1
Shield Optical Microscope Collapsible Vinyl	1
Sink Unit Surgical Scrub Field Portable 115V	1
Sterilizer Surgical Instrument & Dressing	1
Table Folding Legs: Laboratory	1

CONSUMABLES

Nomenclature	Amount	Um
Acetic Acid Glacial USP	0.2	OZ
Bag Biohazard Disposable Red/Orange	1	EA
Bag Sterilization/Biohazard Disp 36x24IN	1	EA
Capillary Centrifugal Hematology TU	1	EA
Disp Contain Hypodermic Needle & Syringe Plas	1	EA
Form Printed Hematology 6.25x4IN	1	EA
Gloves Patient Exam & Treat Plastic Disp LG	1	PR
Holder Blood Collecting Tube Plas Polyprop	1	EA
Lancet Finger Bleeding	1	EA
Mouthpiece Pipetting Plastic/Bone	1	EA
Needle Hypodermic Ster Disp Mat 20GA	1	EA
Pad Isopro Alcohol Impregnated 2.6x1.8IN	1	EA
Paper Lens Pad White Bibulous 6x4IN	1	EA
Pen Ballpoint Retractable Med Pt Black	1	EA
Pencil Red Glazed Extra Thick 6.25IN	1	EA
Pipet-Diluent Blood Lab Plastic .02ML	1	EA
Povidone-Iodine Cleansing Sol USP 7.5%	0.2	OZ
Rubber Bands Size #33	2	EA
Sponge Surg Gauze Compressed 2x2IN White	2	EA
Staples Paper Fastening Office Type	2	EA
Tube Drain Surgical Penrose 7/8x12IN	1	EA
Tube Blood Collecting Glass 7ML Type II Size 2	1	EA
Tube Venous Centrifugal Hematology	1	EA

Laboratory Task: 614 HEMATOCRIT LEVEL

EQUIPMENT

Nomenclature	Amount
Centrifuge Lab Battery Powered 9V	1
Chair Rotary Style AG12 w/Footrest Spider	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1
Power Supply 115V 50/60Hz	1
Sink Unit Surgical Scrub Field Portable 115V	1
Stapler Paper Fastening Office Desk Gray	1
Sterilizer Surgical Instrument & Dressing	1
Table Folding Legs: Laboratory	1

CONSUMABLES

Nomenclature	Amount	Um
Bag Biohazard Disposable Red/Orange	1	EA
Bag Sterilization/Biohazard Disp 36x24IN	1	EA
Book Memorandum 10.5x8IN Ruled	1	EA
Capillary Centrifugal Hematology TU	1	EA
Disp Contain Hypodermic Needle & Syringe Plas	1	EA
Form Printed Hematology 6.25x4IN	1	EA
Gloves Patient Exam & Treat Plastic Disp LG	1	PR
Holder Blood Collecting Tube Plas Polyprop	1	EA
Lancet Finger Bleeding	1	EA
Needle Hypodermic Ster Disp Mat 20GA	1	EA
Pad Isopro Alcohol Impregnated 2.6x1.8IN	1	EA
Pen Ballpoint Retractable Med Pt Black	1	EA
Pencil Red Glazed Extra Thick 6.25IN	1	EA
Povidone-Iodine Cleansing Sol USP 7.5%	0.2	OZ
Rubber Bands Size #33	2	EA
Sealer-Holder Capill Tube Plastic Disp	1	EA
Sponge Surg Gauze Compressed 2x2IN White	2	EA
Staples Paper Fastening Office Type	2	EA
Tube Capillary Microhemocrit Glass K28	1	EA
Tube Drain Surgical Penrose 7/8x12IN	1	EA
Tube Blood Collecting Vacuum 7ML Solution	1	EA

Laboratory Task: 615 WHITE BLOOD CELL DIFFERENTIAL COUNT

EQUIPMENT

Nomenclature	Amount
Beaker Lab Polyprop 400ML Cap Rating B1 Low	1
Chair Rotary Style AG12 w/Footrest Spider	1
Counter Blood Cells Differential	1
Demineralizer Water Ion Exchange 10W	1
Forceps Hemostatic Kelly Curved 5.5IN	1
Funnel Common Lab Polyprop Ribbed 100MM	1
Microscope Optical Binocular 120/230V	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1
Pan Biological Staining Rectangle 25.3x15CM	1
Shield Optical Microscope Collapsible Vinyl	1
Sink Unit Surgical Scrub Field Portable 115V	1
Stapler Paper Fastening Office Desk Gray	1
Sterilizer Surgical Instrument & Dressing	1
Table Folding Legs: Laboratory	1

CONSUMABLES

Nomenclature	Amount	Um
Bag Biohazard Disposable Red/Orange	1	EA
Bag Sterilization/Biohazard Disp 36x24IN	1	EA
Book Memorandum 10.5x8IN Ruled	1	EA
Cartridge H_2O Demineralize Ion Exchange	1	EA
Disp Contain Hypodermic Needle & Syringe Plas	1	EA
Form Printed Hematology 6.25x4IN	1	EA
Gloves Patient Exam & Treat Plastic Disp LG	1	PR
Holder Blood Collecting Tube Plas Polyprop	1	EA
Immersion Oil Microscopy	0.1	OZ
Lancet Finger Bleeding	1	EA
Needle Hypodermic Ster Disp Mat 20GA	1	EA
Pad Isopro Alcohol Impregnated 2.6x1.8IN	1	EA
Paper Lens Pad White Bibulous 6x4IN	1	EA
Pen Ballpoint Retractable Med Pt Black	1	EA
Pencil Red Glazed Extra Thick 6.25IN	1	EA
Povidone-Iodine Cleansing Sol USP 7.5%	0.2	OZ
Rubber Bands Size #33	2	EA
Slide Microscope Plain Glass 25x75MM	1	EA
Sponge Surg Gauze Compressed 2x2IN White	2	EA
Staples Paper Fastening Office Type	2	EA
Tube Drain Surgical Penrose 7/8x12IN	1	EA
Tube Blood Collecting Glass 7ML Type II Size 2	1	EA
Wright's Staining Solution Romanowski	1	CC

Laboratory Task: 616 PROTHROMBIN TIME (PT)

EQUIPMENT

Nomenclature	Amount
Chair Rotary Style AG12 w/Footrest Spider	1
Demineralizer Water Ion Exchange 10W	1
Incubator Dry Heat 25-115 Deg C 115/120V	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1
Refrigerator Mechanical Biologicals 115V	1
Sink Unit Surgical Scrub Field Portable 115V	1
Stapler Paper Fastening Office Desk Gray	1
Sterilizer Surgical Instrument & Dressing	1
Table Folding Legs: Laboratory	1
Timer Blood/Plasma Coagulation 115V 60Hz	1

CONSUMABLES

Nomenclature	Amount	Um
Bag Biohazard Disposable Red/Orange	1	EA
Bag Sterilization/Biohazard Disp 36x24IN	1	EA
Book Memorandum 10.5x8IN Ruled	1	EA
Cartridge H_2O Demineralize Ion Exchange	1	EA
Cephaloplastin Reagent 2ML	1	EA
Control Coagula Abnormal Citrated Lyoph	1	EA
Control Coagula Normal Citrated Lyoph	1	EA
Cuvette Blood Sample Plas Disp K31	1	EA
Disp Contain Hypodermic Needle & Syringe Plas	1	EA
Form Printed Hematology 6.25x4IN	1	EA
Gloves Patient Exam & Treat Plastic Disp LG	1	PR
Holder Blood Collecting Tube Plas Polyprop	1	EA
Needle Hypodermic Ster Disp Mat 20GA	1	EA
Pad Isopro Alcohol Impregnated 2.6x1.8IN	1	EA
Pen Ballpoint Retractable Med Pt Black	1	EA
Pencil Red Glazed Extra Thick 6.25IN	1	EA
Rubber Bands Size #33	2	EA
Staples Paper Fastening Office Type	2	EA
Thromboplastin Test Reagent Liquid 10 ML/Vial	1	EA
Tip Pipet Style M28 Disp Plastic	1	EA
Tube Drain Surgical Penrose 7/8x12IN	1	EA
Tube Blood Collecting Type I Size 1 5ML	1	EA

Laboratory Task: 617 PARTIAL THROMBOPLASTIN TIME (PTT)

EQUIPMENT

Nomenclature	Amount
Chair Rotary Style AG12 w/Footrest Spider	1
Demineralizer Water Ion Exchange 10W	1
Incubator Dry Heat 25-115 Deg C 115/120V	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1
Refrigerator Mechanical Biologicals 115V	1
Sink Unit Surgical Scrub Field Portable 115V	1
Stapler Paper Fastening Office Desk Gray	1
Sterilizer Surgical Instrument & Dressing	1
Table Folding Legs: Laboratory	1
Timer Blood/Plasma Coagulation 115V 60Hz	1

CONSUMABLES

Nomenclature	Amount	Um
Bag Biohazard Disposable Red/Orange	1	EA
Bag Sterilization/Biohazard Disp 36x24IN	1	EA
Book Memorandum 10.5x8IN Ruled	1	EA
Cartridge H_2O Demineralize Ion Exchange	1	EA
Cephaloplastin Reagent 2ML	1	EA
Control Coagula Abnormal Citrated Lyoph	1	EA
Control Coagula Normal Citrated Lyoph	1	EA
Cuvette Blood Sample Plas Disp K31	1	EA
Disp Contain Hypodermic Needle & Syringe Plas	1	EA
Form Printed Hematology 6.25x4IN	1	EA
Gloves Patient Exam & Treat Plastic Disp LG	1	PR
Holder Blood Collecting Tube Plas Polyprop	1	EA
Needle Hypodermic Ster Disp Mat 20GA	1	EA
Pad Isopro Alcohol Impregnated 2.6x1.8IN	1	EA
Pen Ballpoint Retractable Med Pt Black	1	EA
Pencil Red Glazed Extra Thick 6.25IN	1	EA
Povidone-Iodine Cleansing Sol USP 7.5%	0.2	OZ
Rubber Bands Size #33	2	EA
Sponge Surg Gauze Compressed 2x2IN White	2	EA
Staples Paper Fastening Office Type	2	EA
Thromboplastin Test Reagent Liquid 10ML/Vial	1	EA
Tip Pipet Style M28 Disp Plastic	1	EA
Tube Drain Surgical Penrose 7/8x12IN	1	EA
Tube Blood Collecting Type I Size 1 5ML	1	EA

Laboratory Task: 618 OCCULT BLOOD DETERMINATION

EQUIPMENT

Nomenclature	Amount
Chair Rotary Style AG12 w/Footrest Spider	1
Sink Unit Surgical Scrub Field Portable 115V	1
Stapler Paper Fastening Office Desk Gray	1
Table Folding Legs: Laboratory	1

CONSUMABLES

Nomenclature	Amount	Um
Bag Biohazard Disposable Red/Orange	1	EA
Bag Sterilization/Biohazard Disp 36x24IN	1	EA
Form Printed Miscellaneous 6.25x4IN	1	EA
Gloves Patient Exam & Treat Plastic Disp LG	1	PR
Pen Ballpoint Retractable Med Pt Black	1	EA
Staples Paper Fastening Office Type	2	EA
Test Kit Occult Blood Determination	1	EA

Laboratory Task: 619 SPINAL FLUID CELL COUNT & DIFFERENTIAL

EQUIPMENT

Nomenclature	Amount
Beaker Lab Polyprop 400ML Cap Rating B1 Low	1
Centrifuge Lab SM Trunnion 115V 50/60Hz	1
Chair Rotary Style AG12 w/Footrest Spider	1
Counter Blood Cells Differential	1
Demineralizer Water Ion Exchange 10W	1
Forceps Hemostatic Kelly Curved 5.5IN	1
Funnel Common Lab Polyprop Ribbed 100MM	1
Hemacytometer Set Complete w/Case	1
Microscope Optical Binocular 120/230V	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1
Pan Biological Staining Rectangle 25.3x15CM	1
Pipet Blood Diluting Thoma Glass M11 White	1
Pipet Blood Diluting Thoma Glass w/o Tubing	1
Refrigerator Mechanical Biologicals 115V	1
Shield Optical Microscope Collapsible Vinyl	1
Sink Unit Surgical Scrub Field Portable 115V	1
Stapler Paper Fastening Office Desk Gray	1
Table Folding Legs: Laboratory	1

CONSUMABLES

Nomenclature	Amount	Um
Acetic Acid Glacial USP	0.2	OZ
Applicator Disp Square Tip 6"-.08"Dia	1	EA
Bag Biohazard Disposable Red/Orange	1	EA
Bag Sterilization/Biohazard Disp 36x24IN	1	EA
Book Memorandum 10.5x8IN Ruled	1	EA
Cartridge H_2O Demineralize Ion Exchange	1	EA
Form Printed Miscellaneous 6.25x4IN	1	EA
Gloves Patient Exam & Treat Plastic Disp LG	1	PR
Immersion Oil Microscopy	0.1	OZ
Mouthpiece Pipetting Plastic/Bone	1	EA
Paper Lens Pad White Bibulous 6x4IN	1	EA
Pen Ballpoint Retractable Med Pt Black	1	EA
Rubber Bands Size #33	2	EA
Slide Microscope Plain Glass 25x75MM	1	EA
Staples Paper Fastening Office Type	2	EA
Wright's Staining Solution Romanowski	1	EA

Laboratory Task: 620 URINALYSIS WITH SPECIFIC GRAVITY

EQUIPMENT

Nomenclature	Amount
Centrifuge Lab SM Trunnion 115V 50/60Hz	1
Chair Rotary Style AG12 w/Footrest Spider	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1
Refractomet Hand Immersion Ty Alum 3 Scale	1
Sink Unit Surgical Scrub Field Portable 115V	1
Stapler Paper Fastening Office Desk Gray	1
Table Folding Legs: Laboratory	1

CONSUMABLES

Nomenclature	Amount	Um
Bag Biohazard Disposable Red/Orange	1	EA
Bag Sterilization/Biohazard Disp 36x24IN	1	EA
Book Memorandum 10.5x8IN Ruled	1	EA
Form Printed Urinalysis 6.25x4IN	1	EA
Gloves Patient Exam & Treat Plastic Disp LG	1	PR
Pen Ballpoint Retractable Med Pt Black	1	EA
Rubber Bands Size #33	2	EA
Specimen Kit Urine 501 Components	1	EA
Staples Paper Fastening Office Type	2	EA
Sulfosal Acid Dihydrate Analyzed Reagent	1	OZ
Test Strip/Color Urine Chemistry	1	EA

Laboratory Task: 621 MICROSCOPIC URINALYSIS

EQUIPMENT

Nomenclature	Amount
Centrifuge Lab SM Trunnion 115V 50/60Hz	1
Chair Rotary Style AG12 w/Footrest Spider	1
Demineralizer Water Ion Exchange 10W	1
Microscope Optical Binocular 120/230V	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1
Shield Optical Microscope Collapsible Vinyl	1
Sink Unit Surgical Scrub Field Portable 115V	1
Stapler Paper Fastening Office Desk Gray	1
Table Folding Legs: Laboratory	1

CONSUMABLES

Nomenclature	Amount	Um
Applicator Disp Square Tip 6"-.08"Dia	1	EA
Bag Biohazard Disposable Red/Orange	1	EA
Bag Sterilization/Biohazard Disp 36x24IN	1	EA
Book Memorandum 10.5x8IN Ruled	1	EA
Cartridge H_2O Demineralize Ion Exchange	1	EA
Cover Glass Microscope Slide 22MM	1	EA
Form Printed Urinalysis 6.25x4IN	1	EA
Gloves Patient Exam & Treat Plastic Disp LG	1	PR
Paper Lens Pad White Bibulous 6x4IN	1	EA
Pen Ballpoint Retractable Med Pt Black	1	EA
Rubber Bands Size #33	2	EA
Slide Microscope Plain Glass 25x75MM	1	EA
Specimen Kit Urine 501 Components	1	EA
Staples Paper Fastening Office Type	2	EA

Laboratory Task: 633 GRAM STAIN

EQUIPMENT

Nomenclature	Amount
Burner Gas Lab Bunsen Liq Petroleum Gas	1
Chair Rotary Style AG12 w/Footrest Spider	1
Demineralizer Water Ion Exchange 10W	1
Forceps Hemostatic Kelly Curved 5.5IN	1
Igniter Friction Wire Frame Round File	1
Loop Inoculating Lab Round Tip 0.41MM	1
Microscope Optical Binocular 120/230V	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1
Shield Optical Microscope Collapsible Vinyl	1
Sink Unit Surgical Scrub Field Portable 115V	1
Stapler Paper Fastening Office Desk Gray	1
Table Folding Legs: Laboratory	1

CONSUMABLES

Nomenclature	Amount	Um
Bag Biohazard Disposable Red/Orange	1	EA
Bag Sterilization/Biohazard Disp 36x24IN	1	EA
Book Memorandum 10.5x8IN Ruled	1	EA
Cartridge H_2O Demineralize Ion Exchange	1	EA
Cartridge Lab Gas Burner Disp Nonrefil	1	EA
Form Printed Miscellaneous 6.25x4IN	1	EA
Gloves Patient Exam & Treat Plastic Disp LG	1	PR
Immersion Oil Microscopy	0.1	OZ
Kit Gram Staining	1	EA
Paper Lens Pad White Bibulous 6x4IN	1	EA
Pen Ballpoint Retractable Med Pt Black	1	EA
Slide Microscope Plain Glass 25x75MM	1	EA
Staples Paper Fastening Office Type	2	EA

Laboratory Task: 634 RPR TEST FOR SYPHILIS

EQUIPMENT

Nomenclature	Amount
Centrifuge Lab SM Trunnion 115V 50/60Hz	1
Chair Rotary Style AG12 w/Footrest Spider	1
Demineralizer Water Ion Exchange 10W	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1
Refrigerator Mechanical Biologicals 115V	1
Rotator Lab Variable Speed 120/230V	1
Sink Unit Surgical Scrub Field Portable 115V	1
Stapler Paper Fastening Office Desk Gray	1
Sterilizer Surgical Instrument & Dressing	1
Table Folding Legs: Laboratory	1

CONSUMABLES

Nomenclature	Amount	Um
Bag Biohazard Disposable Red/Orange	1	EA
Bag Sterilization/Biohazard Disp 36x24IN	1	EA
Book Memorandum 10.5x8IN Ruled	1	EA
Bulb Dropping Pipet Rubber 3ML	1	EA
Cartridge H_2O Demineralize Ion Exchange	1	EA
Disp Contain Hypodermic Needle & Syringe Plas	1	EA
Form Printed Miscellaneous 6.25x4IN	1	EA
Gloves Patient Exam & Treat Plastic Disp LG	1	PR
Holder Blood Collecting Tube Plas Polyprop	1	EA
Needle Hypodermic Ster Disp Mat 20GA	1	EA
Pad Isopro Alcohol Impregnated 2.6x1.8IN	1	EA
Pen Ballpoint Retractable Med Pt Black	1	EA
Pencil Red Glazed Extra Thick 6.25IN	1	EA
Povidone-Iodine Cleansing Sol USP 7.5%	0.2	OZ
Rubber Bands Size #33	2	EA
Staples Paper Fastening Office Type	2	EA
Test Kit Syphilis Detection	1	EA
Tube Drain Surgical Penrose 7/8x12IN	1	EA
Tube Blood Collecting Glass 7ML Type II Size 2	1	EA

Laboratory Task: 636 THICK & THIN SMEAR FOR MALARIA

EQUIPMENT

Nomenclature	Amount
Chair Rotary Style AG12 w/Footrest Spider	1
Demineralizer Water Ion Exchange 10W	1
Microscope Optical Binocular 120/230V	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1
Shield Optical Microscope Collapsible Vinyl	1
Sink Unit Surgical Scrub Field Portable 115V	1
Stapler Paper Fastening Office Desk Gray	1
Sterilizer Surgical Instrument & Dressing	1
Table Folding Legs: Laboratory	1

CONSUMABLES

Nomenclature	Amount	Um
Applicator Disp Square Tip 6"-.08"Dia	2	EA
Bag Biohazard Disposable Red/Orange	1	EA
Bag Sterilization/Biohazard Disp 36x24IN	1	EA
Book Memorandum 10.5x8IN Ruled	1	EA
Box Microscope Slide Plastic 25 Slides	1	EA
Capillary Centrifugal Hematology TU	1	EA
Disp Contain Hypodermic Needle & Syringe Plas	1	EA
Form Printed Miscellaneous 6.25x4IN	1	EA
Giemsa's Staining Solution 50ML 25GM	15	ML
Gloves Patient Exam & Treat Plastic Disp LG	1	PR
Holder Blood Collecting Tube Plas Polyprop	1	EA
Immersion Oil Microscopy	0.1	OZ
Needle Hypodermic Ster Disp Mat 20GA	1	EA
Pad Isopro Alcohol Impregnated 2.6x1.8IN	1	EA
Paper Lens Pad White Bibulous 6x4IN	1	EA
Pen Ballpoint Retractable Med Pt Black	1	EA
Pencil Red Glazed Extra Thick 6.25IN	1	EA
Povidone-Iodine Cleansing Sol USP 7.5%	0.2	OZ
Rubber Bands Size #33	2	EA
Sponge Surg Gauze Compressed 2x2IN White	2	EA
Staples Paper Fastening Office Type	2	EA
Tube Drain Surgical Penrose 7/8x12IN	1	EA
Tube Blood Collecting Vacuum 7ML Solution	1	EA

Laboratory Task: 637 EXAMINE FECES FOR OVA, CYSTS & PARASITES

EQUIPMENT

Nomenclature	Amount
Centrifuge Lab SM Trunnion 115V 50/60Hz	1
Chair Rotary Style AG12 w/Footrest Spider	1
Demineralizer Water Ion Exchange 10W	1
Microscope Optical Binocular 120/230V	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1
Refrigerator Mechanical Biologicals 115V	1
Shield Optical Microscope Collapsible Vinyl	1
Sink Unit Surgical Scrub Field Portable 115V	1
Stapler Paper Fastening Office Desk Gray	1
Table Folding Legs: Laboratory	1

CONSUMABLES

Nomenclature	Amount	Um
Applicator Disp Square Tip 6"-.08"Dia	1	EA
Bag Biohazard Disposable Red/Orange	1	EA
Bag Sterilization/Biohazard Disp 36x24IN	1	EA
Book Memorandum 10.5x8IN Ruled	1	EA
Box Microscope Slide Plastic 25 Slides	1	EA
Bulb Dropping Pipet Rubber 3ML	1	EA
Cartridge H_2O Demineralize Ion Exchange	1	EA
Fecal Specimen Collection/Preparation Kit	1	EA
Form Printed Miscellaneous 6.25x4IN	1	EA
Gloves Patient Exam & Treat Plastic Disp LG	1	PR
Immersion Oil Microscopy	0.1	OZ
Paper Lens Pad White Bibulous 6x4IN	1	EA
Pen Ballpoint Retractable Med Pt Black	1	EA
Pipet Bacteriological Disp	1	EA
Rubber Bands Size #33	2	EA
Staples Paper Fastening Office Type	2	EA

Laboratory Task: 639 PREGNANCY DETERMINATION

EQUIPMENT

Nomenclature	Amount
Chair Rotary Style AG12 w/Footrest Spider	1
Refrigerator Mechanical Biologicals 115V	1
Sink Unit Surgical Scrub Field Portable 115V	1
Table Folding Legs: Laboratory	1

CONSUMABLES

Nomenclature	Amount	Um
Bag Biohazard Disposable Red/Orange	1	EA
Bag Sterilization/Biohazard Disp 36x24IN	1	EA
Form Printed Miscellaneous 6.25x4IN	1	EA
Gloves Patient Exam & Treat Plastic Disp LG	1	PR
Pen Ballpoint Retractable Med Pt Black	1	EA
Rubber Bands Size #33	2	EA
*Test Kit Human Chorionic Gonadotropin	1	EA

Laboratory Task: 638 POTASSIUM HYDROXIDE (KOH)

EQUIPMENT

Nomenclature	Amount
Chair Rotary Style AG12 w/Footrest Spider	1
Demineralizer Water Ion Exchange 10W	1
Microscope Optical Binocular 120/230V	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1
Shield Optical Microscope Collapsible Vinyl	1
Sink Unit Surgical Scrub Field Portable 115V	1
Stapler Paper Fastening Office Desk Gray	1
Table Folding Legs: Laboratory	1

CONSUMABLES

Nomenclature	Amount	Um
Applicator Disp Square Tip 6"-.08"Dia	1	EA
Bag Biohazard Disposable Red/Orange	1	EA
Bag Sterilization/Biohazard Disp 36x24IN	1	EA
Book Memorandum 10.5x8IN Ruled	1	EA
Bulb Dropping Pipet Rubber 3ML	1	EA
Cartridge H_2O Demineralize Ion Exchange	1	EA
Cover Glass Microscope Slide 22MM 1OZ	1	EA
Form Printed Miscellaneous 6.25x4IN	1	EA
Gloves Patient Exam & Treat Plastic Disp LG	1	EA
Paper Lens Pad White Bibulous 6x4IN	1	EA
Pen Ballpoint Retractable Med Pt Black	1	EA
Potassium Hydroxide ACS Pellet	0.1	OZ
Slide Microscope Plain Glass 25x75MM	1	EA
Staples Paper Fastening Office Type	2	EA

Laboratory Task: 641 BLOOD T & C

EQUIPMENT

Nomenclature	Amount
Centrifuge Lab SM Trunnion 115V 50/60Hz	1
Chair Rotary Style AG12 w/Footrest Spider	1
Demineralizer Water Ion Exchange 10W	1
Incubator Dry Heat 25-115 Deg C 115/120V	1
Microscope Optical Binocular 120/230V	1
Outlet Box 6LB 6 Place 120/230V 50/60Hz	1
Rack Test Tube Laboratory 10x4.25x2.5IN	1
Refrigerator Solid State Blood Products	1
Refrigerator Mechanical Biologicals 115V	1
Shears Straight Trimmers Heavy	1
Shield Optical Microscope Collapsible Vinyl	1
Sink Unit Surgical Scrub Field Portable 115V	1
Stapler Paper Fastening Office Desk Gray	1
Sterilizer Surgical Instrument & Dressing	1
Stripper-Sealer-Cutter Blood Coll TU Handheld	1
Table Folding Legs: Laboratory	1
Viewer Agglutination Test Tube 115V 60Hz	1
Wash Bottle Lab 250ML Plastic Polyethylene	1

CONSUMABLES

Nomenclature	Amount	Um
Bag Blood Collecting/Dispensing Disp 600ML	1	EA
Blood Donor Card DD-572	1	EA
Blood Grouping Serum Anti-A Liquid 10ML	1	EA
Blood Grouping Serum Anti-A & B Liquid 10ML	1	EA
Blood Grouping Serum Anti-B Liquid 10ML	1	EA
Blood Grouping Serum Anti-D Liquid 10ML	1	EA
Book Memorandum 10.5x8IN Ruled	1	EA
Bulb Dropping Pipet Rubber 3ML	1	EA
Cartridge H_2O Demineralize Ion Exchange	1	EA
Clip Sealing Blood Collection	1	EA
Disp Contain Hypodermic Needle & Syringe Plas	1	EA
Form Printed Miscellaneous 6.25x4IN	1	EA
Gloves Patient Exam & Treat Plastic Disp LG	1	PR
Holder Blood Collecting Tube Plas Polyprop	1	EA
Label Style A2 Pressure Sensitive 492INx19MM	1	EA
Pad Isopro Alcohol Impregnated 2.6x1.8IN	1	EA
Paper Lens Pad White Bibulous 6x4IN	1	EA
Pen Ballpoint Retractable Med Pt Black	1	EA
Pencil Red Glazed Extra Thick 6.25IN	1	EA
Povidone-Iodine Cleansing Sol USP 7.5%	0.2	OZ
Rubber Bands Size #33	2	EA
Sponge Surg Gauze Compressed 2x2IN White	2	EA
Staples Paper Fastening Office Type	2	EA
Test Tube Style K12 5ML 75MM Disp	1	EA

Laboratory Task: 631 RAPID STREP TEST (THROAT)

EQUIPMENT

Nomenclature	Amount
Chair Rotary Style AG12 w/Footrest Spider	1
Refrigerator Mechanical Biologicals 115V	1
Sink Unit Surgical Scrub Field Portable 115V	1
Stapler Paper Fastening Office Desk Gray	1
Table Folding Legs: Laboratory	1

CONSUMABLES

Nomenclature	Amount	Um
Applicator Disp Square Tip 6"-.08"Dia	1	EA
Bag Biohazard Disposable Red/Orange	1	EA
Bag Sterilization/Biohazard Disp 36x24IN	1	EA
Form Printed Miscellaneous 6.25x4IN	1	EA
Gloves Patient Exam & Treat Plastic Disp LG	1	PR
Rubber Bands Size #33	2	EA
Staples Paper Fastening Office Type	2	EA
*Test Kit Group A Strep	1	EA

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

X-ray Task: 657 HAND SERIES

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 24x30CM	4
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 24x30CM	4	EA
Additive Developer X-ray Film 5 Fl Oz	1	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 658 WRIST SERIES

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 24x30CM	2
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 24x30CM	2	EA
Additive Developer X-ray Film 5 Fl Oz	1	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

X-ray Task: 659 FOREARM SERIES

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 35x43CM	4
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitv	1	EA
Film Radiographic Kodak T-Mat H/Ra 35x43CM	2	EA
Additive Developer X-ray Film 5 Fl Oz	1	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 660 ELBOW SERIES

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 24x30CM	2
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitv	1	EA
Film Radiographic Kodak T-Mat H/Ra 24x30CM	2	EA
Additive Developer X-ray Film 5 Fl Oz	1	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

X-ray Task: 661 HUMERUS SERIES

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film H Speed 17x14	4
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 35x43CM	4	EA
Additive Developer X-ray Film 5 Fl Oz	1	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 662 SHOULDER SERIES

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Grid Radio 10x12 Linear Focused Type Str Wafer	3
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 24x30CM	6
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 24x30CM	6	EA
Additive Developer X-ray Film 5 Fl Oz	1	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

X-ray Task: 665 CLAVICLE SERIES

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Grid Radio 10x12 Linear Focused Type Str Wafer	2
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 24x30CM	4
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 24x30CM	4	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 666 FOOT SERIES

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 24x30CM	4
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 24x30CM	4	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 667 ANKLE SERIES

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 24x30CM	4
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 24x30CM	4	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 668 LEG TIBIA/FIBIA SERIES

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 35x43CM	4
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 35x43CM	4	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 669 KNEE SERIES

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 24x30CM	12
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 24x30CM	12	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 672 FEMUR SERIES

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Cassette Radiographic Film w/Lanex 35x43CM	4
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 35x43CM	4	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 673 HIP SERIES

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Cassette Radiographic Film w/Lanex 24x30CM	2
Cassette Radiographic Film w/Lanex 35x43CM	2
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 35x43CM	2	EA
Film Radiographic Kodak T-Mat H/Ra 24x30CM	2	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 674 PELVIS AP

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Cassette Radiographic Film w/Lanex 35x43CM	2
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 35x43CM	2	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 675 ILIUM OBLIQUE

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Cassette Radiographic Film w/Lanex 35x43CM	4
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 35x43CM	4	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 676 CHEST AP/PA

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Grid Radio 14x17 Linear Focused Type Str Wafer	2
Cassette Radiographic Film w/Lanex 35x43CM	2
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 35x43CM	2	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

X-ray Task: 677 CHEST LATERAL

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Grid Radio 14x17 Linear Focused Type Str Wafer	1
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 35x43CM	2
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 35x43CM	2	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 679 ABDOMEN SERIES

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Grid Radio 14x17 Linear Focused Type Str Wafer	2
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 35x43CM	6
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 35x43CM	6	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 680 ABDOMEN (SUPINE)

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 35x43CM	2
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 35x43CM	2	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 681 ABDOMEN (UPRIGHT)

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Grid Radio 14x17 Linear Focused Type Str Wafer	1
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 35x43CM	2
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 35x43CM	2	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 682 THORACIC SPINE SERIES

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 35x43CM	4
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 35x43CM	4	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 683 CERVICAL SPINE SERIES

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Grid Radio 10x12 Linear Focused Type Str Wafer	5
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 24x30CM	10
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 24x30CM	10	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 684 LUMBAR SPINE SERIES

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 35x43CM	8
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 35x43CM	8	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 685 SACRO-ILIAC JOINT SERIES

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 24x30CM	6
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 24x30CM	6	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

Appendix C - Equipment & Consumable Requirements for X-ray Tasks

X-ray Task: 686 SKULL SERIES

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Grid Radio 10x12 Linear Focused Type Str Wafer	1
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 24x30CM	10
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 24x30CM	10	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 689 SINUSES WATERS

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Grid Radio 10x12 Linear Focused Type Str Wafer	1
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 24x30CM	2
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 24x30CM	2	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 691 FACIAL BONES

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Grid Radio 10x12 Linear Focused Type Str Wafer	4
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 24x30CM	8
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 24x30CM	8	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 692 MANDIBLE SERIES

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Grid Radio 10x12 Linear Focused Type Str Wafer	1
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 24x30CM	10
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 24x30CM	10	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 693 INTERPRETATION OF FILM STUDIES

EQUIPMENT

Nomenclature	Amount
Illuminator X-ray Film Fluorescent Illuminated	1
Magnifier Glass Monocular 1xNomial Circ 4IN	1

CONSUMABLES

Nomenclature	Amount	Um

X-ray Task: 698 GALL BLADDER SERIES

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Grid Radio 10x12 Linear Focused Type Str Wafer	1
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 24x30CM	4
Cassette Radiographic Film w/Lanex 35x43CM	2
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 35x43CM	2	EA
Film Radiographic Kodak T-Mat H/Ra 24x30CM	4	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 700 CYSTOGRAM (RADIOL/X-R SPEC)

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 35x43CM	8
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Diatrizoate Meglumine & Diatrizoate Sodium	2	ML
Adhesive Tape Surgical 3INx5YD	1	IN
Needle Hypo C13A GP 21GA 1.185-1.312" Luer	2	EA
Syringe Luer Plas Disp Reg Luer Tip 60 ML	2	EA
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 35x43CM	6	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

X-ray Task: 701 URETHROGRAM (RADIOL/X-R SPEC)

EQUIPMENT

Nomenclature	Amount
Caliper X-ray Technique L-shape Alum & CRS	1
Marker Set X-ray Film Ident Gothic Letter	1
Rule Anatomical Transparent 2x18	1
Cassette Radiographic Film w/Lanex 35x43CM	8
Illuminator X-ray Film Fluorescent Illuminated	1
Screen X-ray Protective Mobile 6x2.5 FT	1
X-ray Apparatus Radio Port 25-40MA Low Cap	1
Apron X-ray Protectective Coat 38x24 Lt Weight	1
Holder Radiac Detecting Element Steel Style 12C	1
Thermometer Self-Indicting Bimetallic 8.5IN	1
Table Radiographic Portable Adj 72x27	1
Bottle Waste X-ray Processor 5 GL Capacity	1
Processing Machine Rad Film Auto Table Top	1

CONSUMABLES

Nomenclature	Amount	Um
Diatrizoate Meglumine & Diatrizoate Sodium	2	ML
Adhesive Tape Surgical 3INx5YD 1TY	1	IN
Needle Hypo C13A GP 21GA 1.185-1.312" Luer	2	EA
Syringe Luer Plas Disp Reg Luer Tip 60 ML	2	EA
Label X-ray Film Identification Pressure Sensitiv	1	EA
Film Radiographic Kodak T-Mat H/Ra 35x43CM	6	EA
Envelope Photographic Negative 17.5x14.5	2	EA
Form Printed Radiographic Rpt 8x10.5	2	EA
Fixer X-ray Film Processing	1	EA
Developer X-ray Film Processing Liquid	1	EA

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13. ABSTRACT *(Maximum 200 words)*

Reductions in worst-case scenario Marine Expeditionary Force casualty estimates and recent organizational changes in the structure of the medical battalion have contributed to the need to review the current Authorized Medical Allowance Lists (AMALs). The objective of the present study was to develop a model of the Echelon I and II supply stream that established a clinical requirement for each item used to support forward medical care. Using this approach, four proposed AMALs were produced including an equipment AMAL 618 and a consumable AMAL 619 for the laboratory function and an equipment AMAL 627 and a consumable AMAL 649 for the X-ray function. Results of this study showed substantial reductions in the number of items required, weight and cubic feet of the proposed AMALs when compared to the current Marine Corps AMALs. By establishing the clinical requirement for each item pushed forward, the NHRC model was able to substantially reduce the logistical burden carried by Marine Corps units. This approach also produced an audit trail for each item that allows medical planners and logisticians to substantially improve the process of configuring the AMALs because only items that can be clinically related to a treatment task conducted in theater are considered for inclusion in the AMALs.

14. SUBJECT TERMS Authorized Medical Allowance Lists (AMAL), supply stream, logistics, medical resource allocation, supply configuration model

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